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No. 731.

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CHARLES ELMORE CROPLEY
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IN THE

Supreme Court of the United States

OCTOBER TERM, 1936.

THE NATIONAL FERTILIZER ASSOCIATION, INC., ET AL.,
Appellants,

v.

W. W. BRADLEY, INDIVIDUALLY AND AS CHAIRMAN OF THE BOARD OF TRUSTEES OF CLEMSON AGRICULTURAL COLLEGE, ET AL.

On Appeal from the District Court of the United States for the Western District of South Carolina.

BRIEF FOR APPELLANTS.

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On Appeal from the District Court of the United States for the Western District of South Carolina.

BRIEF FOR APPELLANTS.

OPINION BELOW.

The opinion of the United States District Court for the Western District of South Carolina (R. 144-160) is not reported.

JURISDICTION.

Paragraph 1 of Rule 12 of this Court with reference to jurisdiction has been complied with. Jurisdiction of this Court is conferred by Section 266 of the Judicial Code (United States Code Annotated, Title 28, Section 380).

QUESTION PRESENTED.

This suit involves the constitutionality of a South Carolina statute, approved April 6, 1936, commonly known as the "open formula amendment," which would require a complete disclosure of the poundages and analyses of materials used in the manufacture of fertilizer mixtures.

STATUTES INVOLVED.

The open formula amendment reads as follows:

> "That the amount and analysis of each material, or source, of each plant food element used in manufacture, of a fertilizer mixture containing two or more plant food elements be stated on a tag attached to each sack or container, such amounts of materials to be stated in pounds per hundred pounds of mixture contained in the sack or other container. This statement of pounds of materials used in the manufacture, of a fertilizer mixture shall be in addition to the statement of chemical analysis as required by Section No. 6366 of the Code of Laws of South Carolina, 1932." (Opinion, Record 148. Appendix)

The amendment did not repeal the then existing fertilizer law of South Carolina but was added to such law. For the convenience of the Court, the South Carolina fertilizer law, *with the open formula amendment italicized*, is included in the Appendix.

STATEMENT.

Parties.

Appellants, plaintiffs below, are The National Fertilizer Association, which is the trade organization of the fertilizer industry, and 41 fertilizer manufacturers who make and sell,

or sell, fertilizer in South Carolina. Appellees, defendants below, are the Board of Trustees of Clemson Agricultural College, who are charged by law with the administration and enforcement of the fertilizer laws of South Carolina, and the Attorney-General of South Carolina, the State's chief law officer. (Findings of Fact I and II, R. 160-161)

History of Litigation.

The amendment, by its own terms, was to become effective on August 1, 1936. (Findings of Fact IX, R. 164) A few days before that date, the Clemson College trustees not having promulgated any regulations, as authorized by law, for its administration and enforcement, plaintiffs filed this suit in a three-judge District Court for the Western District of South Carolina, to have the amendment declared unconstitutional and to enjoin defendants from enforcing it. (R. 2.) The Court restrained enforcement pending final determination of the cause, and, after taking testimony and hearing arguments, filed a decree, on December 9, 1936, holding the amendment constitutional and denying the relief sought. (R. 182.) The plaintiffs petitioned for and were allowed an appeal to this Court; and enforcement of the amendment was restrained pending the appeal. (R. 185.)

Contentions of Appellants.

(Bill of Complaint, R. 2-27.)

The contention of plaintiff-appellants in the Court below was and here is that the challenged amendment is contrary to the Constitution of the United States and to the Constitution of the State of South Carolina because—

1. The expense to appellants of complying with the amendment as to fertilizer manufactured after its enactment would be unreasonable and would be so great as to deprive them of their property without due process of law.

2. The amendment would destroy the salability and value of appellants' fertilizer manufactured prior to its enactment and still on hand, and so deprive them of their property without due process of law.

3. The amendment would destroy appellants' property rights in their secret formulas used in manufacturing their fertilizer, which have been developed at great expense over many years, and so dedeprive them of their property without due process of law.

4. The amendment is an unlawful, unreasonable, and unconstitutional exercise of the police power of the State, in that there is no necessity for such law:

   (a) The disclosures required of fertilizer manufacturers by the South Carolina law without the amendment are sufficient to permit intelligent selection of fertilizer.

   (b) All the claimed benefits of the amendment can be obtained by legislation which will not deprive fertilizer manufacturers of their property without due process of law and of a type which has been enacted and enforced in other States.

   (c) Under South Carolina law, without the amendment, any farmer can readily have fertilizer mixed for him in exact accordance with his own specific formula and thereby obtain a fertilizer as to which he knows the number of pounds and the analysis of each material used.

5. The amendment is unenforceable.

History of the Amendment.

(R. 70, 130. Appendix)

In view of some matters contained in the record and to be discussed hereinafter, a brief summary, at this point, of the legislative history of the amendment is indicated.

During the 1934 session of the General Assembly of South Carolina, a joint resolution was passed authorizing the Gov-

ernor to appoint a committee whose duty it should be to review the then existing fertilizer law of the State, to propose such amendments as might seem desirable, or to draft a new law, and to submit its recommendations to the legislature at the next session. The committee was to be composed of such experts from the Staff of Clemson College as might be deemed necessary, five representative farmers of the State to be designated by the Governor, and five representatives of the fertilizer industry to be designated by The National Fertilizer Association. This resolution is printed in the Appendix.

After organization, the committee proceeded with its work. A number of meetings were held, and voluminous correspondence was conducted. A proposed new law, retaining the desirable features of the then existing law and including certain minor changes and additions, was drafted and submitted to the legislature.

The bill as drawn by the committee was passed by the House and sent to the Senate. In the Senate, all of the bill after the enacting clause was stricken out, and in lieu thereof a paragraph (the amendment here challenged) was added to the then existing fertilizer law of the State. The House concurred in the Senate amendment, and the Governor signed the Act. Thereupon, the amendment (quoted above), differing radically from the Committee and House bill, became law, without, however, repealing any part of the then existing fertilizer law of the State, all of which remained in effect.

Definitions.

As a preliminary to some necessary technical discussion, the Court's attention is respectfully directed to the following three definitions. These definitions have been adopted as official by the Association of Official Agricultural Chemists, an organization composed of chemists connected with the United States Department of Agriculture, with State agricultural colleges and experiment stations,

and with State institutions and bodies charged with official control of fertilizer. They occur in "A Dictionary of Fertilizer Materials" introduced in evidence by defendants. The entire Dictionary (with the exception of one definition not included among these three but to be discussed hereinafter) was specifically adopted by the Court below. (R. 173-174.)

> "*Fertilizer Formula.* The term fertilizer formula shall be interpreted as expressing the quantity and grade of crude stock materials used in making a fertilizer mixture. For example: 800 pounds of 16 per cent. acid prosphate, 800 pounds of 9-20 tankage, and 400 pounds of sulphate of potash-magnesia."

The formula shown in the example quoted is one of the very simplest type and includes only three materials. As different results are sought through the use of different materials, and different proportions of materials, formulas naturally become more complex. The following hypothetical formula, as indicated by the testimony (R. 67), is fairly illustrative of the complexity but not of the composition of formulas used by South Carolina manufacturers of fertilizer—foramulas actually in use being secret:

Fertilizer Formula

Grade 8-3-3

Name of Materials	Analysis of Materials			Lbs. Per Ton	Plant Food Derived from Amounts of Each Material Used		
					Available		Soluble
	P_2O_5*	NH_3*	K_2O*		P_2O_5*	Ammonia	K_2O*
Nitrate of Soda		19.2		65		.62	
Sulphate of Ammonia		25.0		50		.62	
Urea Ammonia Liquor		55.2		20		.55	
Animal Tankage	2	9.1		100	.1	.45	
Fish Scrap	4	9.8		100	.2	.49	
Cotton Seed Meal		8.0		100		.40	
Superphosphate	16.8			970	8.14		
Sulphate of Potash			50	60			1.50
Muriate of Potash			60.5	55			1.65
Dolomite				480			
Total				2000	8.44	3.13	3.15

*NH_3—Ammonia P_2O_5—Phosphoric Acid K_2O—Potash

Although the minimum amount of the several plant foods guaranteed to be present are phosphoric acid 8 per cent, ammonia 3 per cent, and potash 3 per cent, it will be noted that a margin of safety is figured into the formula to insure that the guarantees will be maintained so that an actual content of 8.44 per cent phosphoric acid, 3.12 per cent ammonia, and 3.15 per cent potash is provided for.

Still more complex formulas are used, of course, as specific crop needs and particular soil deficiencies dictate.

> "*Fertilizer Grade.* The grade of a fertilizer shall represent the minimum guarantee of its plant food expressed in terms of nitrogen, available phosphoric acid, and water soluble potash."

It is to be noted that the industry definition of "grade" relates to the percentage of the major plant foods contained in a particular fertilizer rather than to the commonly understood connotation of value or quality.

South Carolina is one of two States—Georgia being the other—whose laws provide for listing these plant foods in the order: Phosphoric acid, nitrogen, and potash, rather than in the order prescribed in the definition. Thus in South Carolina a fertilizer of an "8-3-3" grade is one in which the minimum guarantee of available phosphoric acid is 8 per cent, of ammonia 3 per cent, and of potash 3 per cent, while in other States except Georgia the first figure would refer to nitrogen, the second to phosphoric acid, and the third to potash.

> "*Brand and Brand Name.* • • A brand is a term, design or trade-mark used in connection with one or several grades of fertilizers." "A brand name is a specific designation applied to an individual fertilizer."

The word "fertilizer", when used in this brief without the addition of the word "materials", means the same thing as "mixed fertilizer" or "fertilizer mixture."

The Process of Manufacturing Fertilizer.

A mixed fertilizer contains generally the three primary or major plant foods, phosphoric acid, ammonia or its nitrogen equivalent, and potash, and may contain secondary or minor plant foods. (R. 64, 46.)

Phosphoric Acid.

(R. 64-66.)

The phosphoric acid is derived almost entirely from one material, namely, superphosphate. Superphosphate is a product resulting from the mixture of finely ground phosphate rock with sulphuric acid. Phosphate rock, that used in South Carolina, at least, is produced mainly in Florida and is shipped from the Florida mines in coarse form. This material is received at the fertilizer plant and ground to a very fine powder. Sulphuric acid is made at many fertilizer plants by burning sulphur which comes from Texas in the form of native brimstone, or from the copper-bearing ores in the Copperhill, Tennessee, district, or from sulphur-bearing ores, such as pyrites.

Superphosphate is made by mixing approximately equal weights of ground phosphate rock and 50-degree sulphuric acid. These mixtures are usually made in one-ton batches. Approximately 1,000 pounds of finely ground phosphate rock and 1,000 pounds of sulphuric acid are weighed, transferred to suitable mixing machinery, and intimately mixed therein. A considerable chemical reaction immediately takes place between the sulphuric acid and the phosphate rock. The mixture rises and foams and heats. During this chemical reaction the phosphoric acid (phosphate of lime) in the rock, which was previously not soluble and was practically unavailable to plants, is transformed into a product (mono and dicalcium phosphate) whose phosphoric acid is nearly all soluble in water and is practically all available to plants in the soil.

After the acid and rock are mixed, the mixture while still fluid is discharged from the mixer into what is called a den. This is a closed chamber usually built of concrete, with a capacity of 30 or 40 up to 200 or 300 tons. The one-ton charges are mixed consecutively and dumped into these dens until the dens are practically filled. This may take from one hour to nearly all day, dependent on the size of the den. After this fluid mixture is discharged into the den it soon solidifies into one solid mass. After a time, say a half hour, or perhaps over night, the dens are opened and the material is taken out with picks, forks, or some mechanical device. The product at that stage is quite hot and still somewhat moist. It is then conveyed to elevators and discharged therefrom on to other conveying machinery and carried out into the fertilizer shed where it is dropped from overhead tracks into storage.

The chemical reaction which began in the mixer continues in the dens and still continues in the piles in the shed. This curing period requires in the curing shed, dependent on varying conditions, from one month to four, five, or six months, and during this final curing period the remainder of the unavailable phosphoric acid in the rock is gradually converted into a highly available form. After this curing process has been completed we have what is called cured run-of-pile superphosphate—the old term for the same material was acid phosphate, but in recent years this term has been abandoned in favor of the historically more accurate term superphosphate.

In the curing pile superphosphate again sets up into one solid mass, and before it can be used for mixing with other fertilizer materials it has to be taken out by picks, shovels, or some mechanical device, frequently after being blasted with dynamite. This superphosphate contains anywhere from 16 per cent to approximately 21 per cent available phosphoric acid. The chemical symbol of phosphoric acid is P_2O_5. The grade of superphosphate is determined by

the grade of rock used in making the superphosphate. Superphosphate constitutes the large bulk of mixed fertilizer—anywhere from 40 per cent to 75 per cent by weight of the bag of fertilizer is superphosphate.

Potash.
(R. 66.)

Potash is received by the fertilizer manufacturer in finished state, in the form of salts, and requires no processing by him before it is ready for use in the mixing of fertilizer. Potash is furnished as muriate of potash in the form of kainit, which contains about 20 per cent available potash, in the form of manure salts containing from 25 per cent to 30 per cent potash, and in two higher grade forms of muriate, one of which will average from 50 per cent to 55 per cent potash and the other from 60 per cent to 62 per cent; and as sulphate of potash in a form containing approximately 50 per cent of potash, and in the form of sulphate of potash-magnesia which contains about 26 per cent to 28 per cent potash and about 14 per cent magnesia.

Nitrogen (ammonia equivalent).
(R. 66-67.)

In the South Carolina fertilizer law, in the fertilizer industry, in the testimony, and in this brief, the word "nitrogen" and the word "ammonia" are used almost interchangeably. Ammonia is a combination of nitrogen with hydrogen, 14 pounds of nitrogen being the chemical equivalent of 17 pounds of ammonia.

The group of fertilizer materials which furnish nitrogen (ammonia equivalent) is the most numerous group. It may be divided into two smaller groups. The first is a group consisting of those materials carrying nitrogen which is readily soluble in water, including the following: Sulphate of ammonia, nitrate of soda, nitrate of potash, ammonium

nitrate, urea, urea ammonia solution, cyanamid, cal-nitro, ammonium nitrate solution, nitrate of soda solution, calcium nitrate, nitrate of soda-potash and ammonium phosphate. This list of 13 materials includes nearly all of the common water-soluble forms of nitrogen. This group may be further subdivided into sub-groups: Those materials which furnish nitrogen in the nitrate form, those which furnish nitrogen in the form of ammonium salts, and those which furnish nitrogen in the water-soluble organic form. These different sub-groups of materials vary only slightly as to the solubility and availability of their nitrogen.

The other general group of nitrogen-bearing materials consists of those which furnish water-insoluble nitrogen and includes the following: Packing house tankage, process or nitrogenous tankage, dried blood, cottonseed meal, acid fish scrap, dried fish scrap, peanut meal, bone, Peruvian Guano, castor meal, tobacco stems, soy bean meal, and sardine meal. This list of 13 materials includes nearly all of the commonly used water-insoluble materials; and while these are referred to as being water-insoluble, a small fraction of the nitrogen in each of them is readily water-soluble. This may amount to somewhere from 1/20 to 1/3 of the total nitrogen present in these materials.

Secondary (Minor) Plant Foods.
(R. 32, 46, 58)

In addition to the three primary (major) plant foods there are a number of secondary or minor plant foods which aid in the production of crops. Research and experimentation are adding daily to available information in the field of minor plant foods, but the present knowledge is not sufficient to warrant regulatory legislation. Among the chemical elements referred to in the testimony as minor plant foods are: Calcium, sulphur, magnesium, manganese, boron, zinc, copper, iron, and cobalt.

Filler.
(R. 49)

Fertilizer is mixed in one-ton batches. In making a mixture it may be found that the requisite amounts of the various materials to be used do not aggregate 2,000 pounds. In any such case the difference is made up by adding sufficient "filler" to make the batch total a ton.

Formulation.
(R. 67.)

We have now discussed briefly the materials generally used in the manufacture of fertilizers. In manufacturing a fertilizer the manufacturer must consider the characteristics (compatibility, etc.) of the various materials, including their suitability and availability to certain plants in certain soils under different conditions.

In the process of manufacture one material, superphosphate, is used almost entirely as the source of phosphoric acid. Potash is ordinarily obtained from one or two materials, usually from one or more of the muriates, or occasionally from one or more of the sulphate forms. Nitrogen is usually obtained from not less than four and frequently from as many as six different materials. Part of the nitrogen may be obtained from materials furnishing nitrogen in the nitrate form, part from materials furnishing it in the form of ammonia salts, part from materials furnishing it as water-soluble organic, and part from materials furnishing it as available water-insoluble organic.

Fertilizer formula combinations are determined partly by agronomic needs of the plants, partly by costs of the materials themselves, and partly by the chemical nature of the materials. Certain materials are incompatible and cannot be mixed together without getting undesirable reactions which would destroy some of the plant food present or in some cases make mixtures which would be damp or sticky and unsuitable for application to the soil by fertilizer-dis-

tributing machinery. A fertilizer formula of 2,000 pounds, therefore, is built up based on these various factors and consists of the number of pounds of each of the materials necessary to supply the proportion of each of the various classes of plant foods thought desirable by the manufacturer for the particular purpose.

Mechanics of Mixing.
(R. 67-68.)

As already stated, fertilizer is usually mixed in one-ton batches. There will be anywhere from 6 to 10 or 12 different materials in each ton batch of such fertilizer mixture. Materials are usually received in carload lots (20 tons) and each carload of any given material may and usually does vary in percentage of plant food content from every other carload of such material. The amount of each material required according to the particular formula being used is separately weighed out, carried in wheelbarrows or carts to an elevator, dumped into the boot of the elevator, hoisted and discharged onto screens; the coarse particles of materials which do not go through the screen are delivered to a mill, ground up and returned to the mixture, and finally the entire ton of materials is assembled into a mixer. This fertilizer mixer resembles a concrete mixer; in it the materials are mixed and intermingled, and when thoroughly mixed are discharged and conveyed by overhead conveyors to the storage or curing pile in the factory. These piles range from 100 tons up to 5,000 tons. In these curing piles the mixtures undergo a curing process which includes many chemical and physical reactions among the fertilizer materials themselves as a result of which the mass sets up into one solid hard lump, so hard that it is frequently necessary to use dynamite to break down the piles in order that the mixture may be finally pulverized, screened, bagged, and made ready for shipment. If these chemical and physical reactions did not take place in the curing pile, they would

take place in the bags and then the fertilizer would become almost as hard as a block of cement and wholly unsuitable for use in distributing machinery on the farms.

Application of Amendment.

The South Carolina fertilizer law, without the challenged amendment, requires, before any fertilizer can be offered for sale, a disclosure, on the container or on a tag attached thereto, of exhaustive information which appellants contend is entirely sufficient for intelligent selection of fertilizer. These requirements will be discussed in detail hereinafter. Compliance with the challenged amendment would require, in addition, that there be published on a tag attached to each sack or other container of a fertilizer mixture a statement showing the number of pounds of each material used in the manufacture of each 100 pounds of the mixture contained in the sack or other container, and the analysis of each such material. (1932 S. C. Code, Sections 6366, 6367. Appendix.)

SPECIFICATION OF ASSIGNED ERRORS INTENDED TO BE URGED.

There are 56 assignments of error. (R. 187-203.) According to appellants' view, the "Findings of Fact", the "Conclusions of Law", and the "Opinion" of the Court below abound with error; and in order for appellants to preserve their rights it was necessary for them to make rather numerous assignments of error. The assignments are intended to put in issue all findings and conclusions which are inconsistent with appellants' position as advanced in the Court below and on this appeal, and to preserve the record intact for that purpose. Appellants intend therefore to urge all the assignments, without discussing them seriatim, and believe that with the foregoing explanation and the following classification of the assignments, consideration of them will not be unduly burdensome.

Classification of Assignments.

A. Errors in stating provisions and effect of existing South Carolina law, without the challenged amendment (Numbers 1, 2, 3, 6, 7, 9, and 10)	7
B. Error in quoting provisions of the challenged amendment (Number 4)	1
C. Error as to meaning of distinctive industry language (Number 5)	1
D. Errors in stating appellants' contentions (Numbers 40 and 41)	2
E. Errors in construing the meaning of the challenged amendment (Numbers 8, 25, 26, 27, and 43)	5
F. Errors in findings of fact in the "Findings of Fact" and the "Opinion," with respect to matters peculiarly of the essence of the case (Numbers 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 28, 42, 44, 45, and 46)	19
G. Errors in conclusions of law and final decree (Numbers 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, and 39)	11
H. Errors in failing to make certain findings of fact and to reach certain conclusions of law (Numbers 47, 48, 49, 50, 51, 52, 53, 54, 55, and 56)	10
Total	56

SUMMARY OF ARGUMENT.

The challenged amendment is unconstitutional because—

I. The expense that would have to be incurred, under the amendment, by manufacturers, in connection with making mixed fertilizers, would be so unreasonable as to deprive them of their property without due process of law. This expense would arise, first, from the necessity for enlarging manufacturing plants so as to provide additional storage

space for the multiplied number of "curing" piles enforcement of the law would necessitate. Fertilizer could no longer be stored for "curing" in large piles—up to 5,000 tons—as at present, but a new pile would have to be made whenever there was a change of *poundage or analysis* of any material being used or whenever a *different material* was used. A second source of such expense would be the cost of making chemical analyses of materials to be used in manufacturing mixed fertilizer. There are three major plant food elements, and in the testimony reference was made to at least nine so-called "minor" plant food elements. An analysis of each material as to each of these elements would cost, according to an estimate based on the testimony, about $2.00 per ton of mixed fertilizer. And finally, additional "miscellaneous" expenses would be necessary to take care of additional machinery, additional labor, overhead, taxes, insurance, and the like.

The Court below agreed to the principle of law involved in this contention and would have agreed to appellants' application of that principle to the facts in this case except for (a) its construction of the word "analysis" as used in the amendment and (b) its theory that a statement, on the tag attached to a sack of fertilizer, of "pile averages", as to both poundage and analysis of each material used in the manufacture of the fertilizer stored in the pile from which the sack was filled, would be sufficient as a compliance with the law, in lieu of a statement of the number of pounds and the analysis of each material actually used in manufacturing the fertilizer contained in the sack. The Court assigned three different meanings to "analysis", each inconsistent with the others. Moreover, neither as to "analysis" nor as to "pile averages" is its language clear, and under no possible interpretation could its holding in either respect be justified by the evidence, by reason, by the language of the amendment, or by the rules of judicial construction. That the necessary expense of complying with the amendment

would be unreasonable and confiscatory stands fully established by the record.

II. Appellants had on hand when the amendment was enacted and at the time of the hearing and presumably still have on hand, thousands of tons of fertilizer manufactured before the enactment of the amendment. As to such fertilizer it would be impossible for them to comply with the amendment. When this fertilizer was being manufactured, there was no necessity for them to keep records which would now enable them to state the number of pounds and the analysis of each material used, as required by the amendment. Nor is it a scientific possibility now to obtain this information with reference to such fertilizer, either through chemistry or otherwise. The fertilizer could not be sold, under the amendment, without a disclosure of this information. Consequently, enforcement of the amendment would destroy absolutely the salability and hence the value of the fertilizer. Authorities, State and Federal, are cited in support of the position that a State statute which attempts to go so far is unconstitutional.

III. The amendment would destroy appellants' property rights in their secret formulas used in manufacturing their fertilizers. These formulas have been established through the expenditure of enormous sums of money in years of research and investigation—one of the larger companies alone has spent millions of dollars in this kind of work. The testimony shows beyond peradventure the secrecy of these formulas and their value to their owners, as well as the benefits accruing to users of fertilizer from them. A single disclosure of a secret formula on a single tag on a single sack of fertilizer would completely and forever destroy its value as such to its owner. To require such disclosure to the world would be as truly destructive of property and as surely an infringement of personal rights as if property of some other form were involved. It is not claimed by those supporting the amendment, that fertilizer is misbranded,

adulterated, or harmful, and we show elsewhere that there is no necessity for disclosing formulas in order that helpful information regarding the plant food content of fertilizer may be given.

IV. The amendment is an unlawful exercise of the police power because there is no public necessity for such law. The South Carolina law without the amendment requires detailed information regarding fertilizer to be published on the sack or on a tag attached thereto. The information so published is sufficient to enable the farmer to buy fertilizer intelligently for his needs; or if additional information should be thought desirable for such purpose it can be provided for by legislation only slightly different from that now in force, of a thoroughly practicable character, and that will not deprive fertilizer manufacturers of their property without due process of law by imposing on them unreasonable expense for compliance, by destroying the salability of goods manufactured before the enactment of the amendment, or by arbitrarily requiring a disclosure of their secret formulas. Legislation of this latter type has been enacted in some States and can be and has been enforced.

Further, the South Carolina law without the amendment recognizes the right of a farmer to contract with a manufacturer to mix fertilizer in exact accord with a specific formula and prescribes a penalty if such contract is not performed precisely as made. Defendants admit in their testimony that any farmer in South Carolina can easily have fertilizer mixed on his own specific formula. Stated differently, this means that any farmer in South Carolina can easily obtain a fertilizer as to which he knows the number of pounds and the analysis of each material used. It is not claimed that the amendment could do more for him.

There is therefore no necessity for the amendment. Would there be any justification for taking away property of one person merely to confer a benefit or a privilege on another, when that other person could easily enjoy such

benefit or privilege through the exercise of an existing right? This Court has well said:

> "The constitutional guaranties may not be made to yield to mere convenience." *Weaver* v. *Palmer Bros.*, 270 U. S. 402.

V. The amendment is unenforceable. There is no known method, chemical or other, which can determine accurately the amounts and analyses of the materials that were used in the manufacture of the finished product—a mixed fertilizer. Chemical analysis will disclose essential facts about fertilizer materials, such as the presence and amount of a so-called "minor" plant food element in a material furnishing principally one of the "major" plant food elements, or the class of nitrogen in a material, but it cannot unscramble a fertilizer mixture, actually or theoretically, so as to make the disclosures that would be necessary for checking compliance with the amendment. The Clemson College representatives on the Committee appointed by the Governor to study the fertilizer situation recommended that guarantees be made on the classes of nitrogen rather than on the poundage of materials, as they felt this was the only information that would be of any benefit to the farmer and also the only guarantee they could check and determine whether the manufacturer had met his guarantee.

Enforcement of the amendment through the presence of inspectors in the factories, while it might be possible, would be so expensive as to forestall consideration of it as a practical possibility. And the suggested scheme for checking enforcement through examination of manufacturers' records of incoming materials and outgoing mixtures is utterly without value, since such examination would reveal nothing whatever as to the content of a single sack of fertilizer.

In order to be valid, any statute that is based upon the police power of the States must at least tend to accomplish the purpose for which it was intended. How can such a statute even tend to accomplish its purpose if it cannot be enforced?

ARGUMENT.

I. The Expense to Appellants of Complying With the Amendment as to Fertilizer Manufactured After Its Enactment Would Be Unreasonable and Would Be So Great as to Deprive Them of Their Property Without Due Process of Law.

That the burden of expense imposed upon property owners by a State statute in the exercise of the police power must be just and reasonable is so well established as hardly to require a citation of authorities. Even among State court decisions we find the following (*Tenement House Dept.* v. *Moeschen* (N. Y.), 80 App. Div. 526; 90 App. Div. 603):

> "The single question is presented in this case whether the legislation under consideration is a lawful exercise of the police power, *imposing upon the citizen only such expenses as are reasonable.*" (Italics added)

Among decisions by this Court we refer to:

> *Atlantic Coast Line* v. *N. Car. Corp. Commission*, 206 U. S. 1, and
> *Washington* v. *Fairchild*, 224 U. S. 510.

Expenses that would necessarily be added to the cost of manufacturing mixed fertilizer in order that the manufacturer might be able to comply with the challenged amendment may be classified generally as:

1. Expense of increasing size of manufacturing plants;
2. Expense of making chemical analyses of fertilizer materials;
3. Miscellaneous expenses.

Expense of Increasing Size of Plants

In response to the farmers' demands, nearly all the commercial fertilizer used in South Carolina must be moved in approximately 8 weeks' time in the spring. (R. 68) In or-

der that goods may be on hand to meet the rush of this seasonal demand, that the maximum quantities of some of the best fertilizer materials may be utilized, and that fertilizer mixtures may be cured so as to prevent caking and lumps, fertilizer is necessarily mixed and stored in piles for some time prior to shipment. During this time many chemical reactions and physical changes due to mass action take place. These reactions change both the chemical and the mechanical nature of the mixture so that after regrinding it becomes and remains free-flowing and in condition for distribution by farm machinery. (R. 44, 67-68)

Present fertilizer factories have been constructed so that piles of mixed fertilizer may be stored in bins for curing in lots of from 100 to 5,000 tons, depending on the anticipated demand for each separate grade. (R. 67) Depths of such piles sometimes reach 30 feet; the width and length will depend on the size and shape of available floor space, one witness testifying that in his factory a 5,000-ton pile would be 400 feet long. (R. 72, 82-83) If the open formula amendment is enforced as written, a radical change in operating practice in this respect will have to be made. A new pile will have to be made and segregated with *each change of analysis of each raw material used* (R. 46, 68)—the amendment requires as to each 100 pounds of the mixture that the *analysis*, as well as the number of pounds, of each material used in the manufacture of the fertilizer must be shown on a tag attached to the container.

How frequently would such changes occur? It is impossible, of course, for manufacturers of mixed fertilizer to obtain raw materials of uniform plant food content. They are not produced in that way, and manufacturers must use them as they are found. As has been pointed out each carload (20 tons) of any given fertilizer material usually varies in percentage of plant food content from every other carload of the same material. (R. 44, 45, 50, 68) As illustrations: Superphosphate, the material from which practically all the phosphoric acid used in the manufacture of

fertilizer is obtained, will vary from 16 to 21 per cent of phosphoric acid. (R. 65) Among potash carriers, muriate of potash varies from 50 to 62 per cent and manure salts from 20 to 30 per cent. (R. 68) Among nitrogen carriers, cottonseed meal contains anywhere from 6 to 9 per cent of ammonia (R. 68), while tankage contains anywhere from 8 to 12 per cent. (R. 68) Organic materials run anywhere from 5 to 16 per cent. (R. 83)

In addition to changes of analysis of the same material, changes from one material to another of the same class are sometimes made. For instance, as will be more fully discussed hereinafter, different materials furnish nitrogen of the same class and of identical agronomic and plant food value. This scientific fact is made use of by manufacturers in making fertilizer mixtures and is specifically recognized by the fertilizer law of South Carolina which authorizes "substitution of one or more materials in either class of approximately equal agricultural value for other materials of the same class." For example, 100 pounds of sulphate of ammonia contains the exact nitrogen equivalent of 25 pounds of liquid anhydrous ammonia, the nitrogen in the two materials being of the same class and of the same chemical form and of identical agricultural value, and both materials being commonly used in the manufacture of fertilizer. (R. 48, 73. 1932 S. C. Code, Section 6367. Appendix)

It is apparent therefore that the change of analysis of material, or the use of a different material for obtaining nitrogen of the same class, necessitating the making and segregation of a new pile of mixture, will occur, in almost every instance, *whenever the manufacturer begins to use a new carload of any material.* When it is borne in mind that as many as ten different materials are commonly used in the manufacture of a fertilizer mixture, the multiplication of storage space necessary, under the amendment, for the segregation of the different piles is strikingly self-evident. The witness Moore, the author of the Dictionary introduced in evidence, estimated that such necessity for numerous

small storage piles, instead of the large piles now used, would reduce the storage capacity of his company to one-tenth of its present capacity. Conversely stated, the company would be compelled to increase its storage capacity ten-fold. (R. 45, 68)

This necessary increase of storage space would, of course, add enormously to the expense of manufacturing fertilizer. It would require additional land and the construction of additional buildings for storage purposes. Wherever plants are so situated that manufacturers could not obtain adjacent land to permit enlargement, the plants would have to be abandoned and new plants built elsewhere.

In the "Opinion" (R. 152) the Court below made some argumentative comments (though no finding of fact) with respect to what it rather vaguely referred to, in this connection, as "the enlargement of warehouses within reasonable degree." This comment indicated that these storage structures and the real estate on which they stand are inexpensive and that enlargement "within reasonable degree" would not actually increase the cost of fertilizer to any great extent. Appellants, of course, are concerned with the enlargement of their plants which will actually become necessary for practical operation if they are forced to comply with the challenged amendment, rather than with a vague, uncertain "reasonable degree" of enlargement, the extent of which no one knows. Further, the argumentative comment referred to is entirely gratuitous, there being nothing in the evidence that would support any finding of fact of like tenor—the fact is that many plants are located in congested industrial sections and frequently on water front property where additional real estate is not available or is very expensive. The testimony on this point all shows —as is supported by reason and common sense—that the increase in expense due to the necessary plant enlargement would practically destroy appellants' business. One of the defendants' witnesses, Mr. Geraty, made a general statement to the effect that he thought the additional expense of

complying with the amendment would not be more than a fraction of a cent a ton. (R. 131) This figure was so ridiculous and so patently contrary to the facts that the Court below did not consider it seriously—in fact, disregarded it entirely—and nowhere and at no time suggested that there would be *no expense* of plant enlargment; but on the contrary found that a "reasonable" enlargement of plants would be required with resulting increased expense.

This expense, great as it would be, could not be avoided since fertilizer must be mixed some time in advance of sale, in order that the mechanical condition essential to application to the soil may be obtained.

Expense of Making Chemical Analyses of Fertilizer Materials

The process of determining the plant food content of any particular fertilizer material is a complex one. Each individual plant food element must be determined separately by chemical analysis. This is frequently a matter of two or three days' operation and a cost of four to five dollars for each determination. (R. 58, 83) Three major plant food elements and at least nine minor plant food elements, already referred to, have been mentioned in the testimony in this case with further statements that there are probably other minor plant food elements.

A manufacturer, in order to make sure of compliance with the amendment, would have to determine, as to each material, the content not only of the three major plant food elements but of all known minor plant food elements. This would entail a series of processes to determine at least nine additional, separate plant food elements. At a cost of four dollars for each element, the additional cost of analysis for each carload of material would be at least $36.00. Since some ten materials are often used in the manufacture of a fertilizer mixture (R. 67), the cost for such a mixture would be $360.00.

For illustration, a small plant shipping only 20,000 tons of mixed fertilizer per annum would receive approximately 1,000 cars of materials from which to manufacture the mixed fertilizer. At a cost of $36.00 a car, the annual analytical expense due solely to the amendment would be $36,000—$1.80 for each ton of fertilizer sold.

If the word "analysis" as used in the challenged amendment should be held to have its ordinary meaning, namely, the determination of all chemical elements contained in the article being analyzed, rather than any one of the restrictive meanings arbitrarily assigned to it by the Court below, and to be hereinafter discussed, then the expense of making analyses would be even greater, since many additional determinations would become necessary.

It must be remembered that the expense of making analyses by Clemson College for enforcement purposes would be increased in the same proportion as the expense of making analyses by the manufacturer, if the law is to be fairly and competently administered.

Miscellaneous Expenses

We have discussed separately and in some detail the expense of plant enlargement and of making analyses which compliance with the challenged amendment would necessitate. There are other accompanying expenses, which are so self-evident as to require no argument, the mere mention of them being sufficient to establish their existence and importance under manufacturing processes already described.

Expenses of this kind would include, for instance, the installation of additional machinery and equipment. Naturally where so many separate piles become necessary, more mixing machinery would likewise become necessary. Additional labor, bookkeeping, taxes, insurance, maintenance, and overhead cost would follow. (R. 22, 53, 68-69)

Tags would have to be changed each time the poundage of any material was changed, resulting either in hand writ-

ing of tags or a multiplicity of printing facilities at greatly increased cost. The burden thus imposed can be visualized by taking the average annual consumption of fertilizer in South Carolina, more than 500,000 tons, and assuming that it is marketed in 200-pound bags, as is the case. There would be more than 5,000,000 tags. As the fertilizer movement takes place in a period of a few weeks, it would be almost a physical impossibility to meet the tag requirements. In order to contain all the information required by the challenged amendment, tags would, of necessity, be very large, and the cost of this extra material and the labor in printing or writing the individual formulas on them would be enormously increased over the present cost.

In addition to the increased cost, curing in smaller piles would not permit mass action to proceed to its full extent so that the physical and chemical reactions due to mass action would not be complete. The resulting fertilizer would be of inferior mechanical condition and homogeneity, and its proper distribution in the soil would be very difficult, if not impossible. (R. 59-60, 68)

Views of the Court Below

The Court below conceded the soundness of the legal principle that unreasonableness of expense of complying with a statute will render it invalid. It very strongly indicated also that it would have sustained appellants' position in this respect with reference to the challenged amendment except for (a) its construction of the word "analysis" as it occurs in the amendment, and (b) the attitude which it anticipates the State administrative agencies (especially Clemson College) will take with reference to the sufficiency, for compliance with the amendment, of a statement of the "pile average," rather than of the actual number, of pounds of materials used in manufacturing the fertilizer contained in any give sack, and of the analysis of such materials. We shall examine the Court's views on each of

these points. (Opinion, R. 151, 152. Findings of Fact I, R. 174)

(a) As to the meaning of "analysis":

The Court below assigned three different and inconsistent meanings to the word "analysis," as it appears in the challenged amendment.

(1) In summarizing the effect of the amendment, the Court said:

> "Stated in its simplest terms the force of this amendment is to require the manufacturers and sellers of fertilizers to state not only the percentage of each plant food element used in the manufacture and not only by the use of general terms the source of that element, but to state in addition the number of pounds of each particular source, or carrier used in each one hundred pounds of the mixture contained in the sack of fertilizer." (Findings of Fact VII, R. 163)

(2) At a later stage it said:

> "We, therefore, have found as a fact that the analysis required in the sentence 'That the amount and analysis of each material, or source, of each plant food element used in the manufacture of a fertilizer mixture * * *' means that the major carrier shall be given, the percentage per hundreds pounds of this major carrier be given, and that the analysis of this major carrier, so far as it contains any of the well recognized plant food elements (major or minor, when important, common or rare in occurrence) be stated." (Findings of Fact I, R. 175)

(3) And still later:

> "We find that the word 'analysis' as defined in the dictionary referred to above is as follows:
>
> 'The word "analysis" as applied to fertilizer, shall designate the percentage composition of the product expressed in terms of nitrogen or ammonia, phosphoric acid and potash in their various forms.' (Definition submitted by the Committee on Defini-

tions of Terms and Interpretations of Results on Fertilizers accepted for final adoption by the A. O. A. C., October, 1926.)

"We think, however, that as used in this Statute there should be another sentence added as follows:

'The analysis shall also designate the source or sources of the nitrogen or ammonia, phosphoric acid and potash, and with respect to the ammonia shall give full information as to solubility or insolubility.'" (Findings of Fact I, R. 176)

Definition No. 1 is not clear. It apparently contemplates a procedure by which is ascertained the percentage of every plant food element, whether major or minor, contained in a fertilizer mixture; but it omits entirely the analysis of each material or source of each plant food element used in manufacturing the fertilizer, though a statement of such analysis is specifically required by the amendment.

Definition No. 2 at its best is most ambiguous. Reduced to its obvious meaning in simple terms, it is that only the poundage and analyses of *major carriers* of plant foods need be stated. The term "major carrier" is unknown in the industry. And what is a major or a minor carrier of plant food is not defined by the Court—whether by "major carrier" of plant food is meant a carrier which has a plant food content of not less than 5 per cent, 4 per cent, 3 per cent, or 2 per cent, is not indicated. Presumably a carrier having a plant food content of less than 2 per cent would not be considered a "major carrier" of plant food, and neither the material, its analysis nor its poundage would need be stated under the law, nor would an ingredient having no plant food content, but added merely to correct or promote a mechanical or other condition need be stated either in poundage or otherwise.

Again, taking an extreme case, assuming that plant food elements in their pure unadulterated state were available for use in manufacturing fertilizers, a 100-pound mixture containing 8 per cent available phosphoric acid, 4 per cent

nitrogen, and 7 per cent potash, could be made by using 8 pounds of pure available phosphoric acid, 4 pounds of pure nitrogen, and 7 pounds of pure potash, combined with a material having no plant food, used for the sole purpose of a diluent the same as water or other neutral substance, may be added to a concentrated medicine to rob it of its burn or other deleterious effect when taken pure, or as a vehicle to spread a substance uniformly over a large area. In such a case, a statement upon such 100-pound container in the following form would be sufficient—

Available phosphoric acid ...	8 lbs.	(100 per cent pure)
Nitrogen	4 lbs.	(100 per cent pure)
Potash	7 lbs.	(100 per cent pure)

giving a total poundage of 19 pounds, which under the law would require to be stated, leaving 81 pounds out of the total of 100 pounds wholly undescribed, and unaccounted for, and concerning which no statement whatsoever would be required.

Again, if, as found by the Court below, only a statement and analysis of "major carriers" of plant food were required, and if the materials other than the pure available phosphoric acid, pure nitrogen, and potash, making up the complement of 100-pound lots, contained those elements or some of them, but in such small quantities as not to constitute such materials "major carriers", we might have a situation where a statement covering a 100-pound lot in the following form—

Available phosphoric acid (pure)	6.97 lbs.
Nitrogen (pure)	3.23 lbs.
Potash (pure)	6.01 lbs.

would be a correct statement within the law, of a product guaranteed to analyze not less than 8-4-7, portions of these elements being contained in carriers not recognized as major carriers, therefore, neither the carriers, the poundage, nor the analyses thereof, would need be stated.

It is obvious that this definition is too vague and indefinite to be given effect. There is a possible meaning of it, suggested not by a reading of it but by questions asked and remarks made by members of the Court below during the hearings. Under this possibility, the definition would limit the analysis required by the amendment to a determination of the major plant food elements and such "important" minor plant food elements as may be contained in any carrier furnishing a major plant food element. And even this meaning is so indefinite that no manufacturer would know when his "analysis" had complied with it. While the Court elsewhere found that phosphoric acid, nitrogen, and potash are the "major" plant food elements, neither here nor elsewhere has it made any finding as to what are "well recognized" minor plant food elements or in what circumstances such elements will be "important." Such a finding would be essential to the application and use of this definition with this meaning since, as the evidence discloses, scientists are not in agreement as to what are "well recognized" minor plant food elements or when they are "important".

Other things aside, if disclosure of minor plant food elements would be of any benefit to users of fertilizer, such benefits would be substantially limited by this definition, since the amendment would require disclosure only of those minor plant food elements contained in carriers of major plant food elements, and would omit disclosure of minor plant food elements which are furnished to fertilizer mixtures otherwise than through carriers of major plant food elements in which they are incidentally present.

Under any view Definition No. 2 is arbitrary and is not justified by anything in the record. It is not the dictionary definition, or that commonly accepted by chemists, or that adopted by the Association of Official Agricultural Chemists, or that adopted by any competent authority, but it is a new definition, formulated by the Court, which, while pur-

porting to interpret or explain the law, amounts in fact to judicial legislation.

Definition No. 3 would limit the analysis required by the amendment to carriers of major plant foods and to a determination of the major plant food elements contained in such carriers, leaving the minor plant food elements entirely outside the application of the amendment. This definition, like No. 2, is arbitrary and is not supported by the record. Like No. 2 also, it is not the dictionary definition, or that commonly accepted by chemists, or that adopted by the Association of Official Agricultural Chemists, or that adopted by any competent authority, but it is a new definition, formulated by the Court, which, while purporting to interpret or explain the law, amounts in fact to judicial legislation. It engrafts upon the word "analysis" as used in connection with chemical determinations a burden not even suggested by the testimony and which it has never heretofore sustained in the entire science of chemistry, namely, an ascertainment and statement of the source or sources of the substance being analyzed—and that in the face of the fact, shown by the record, that by no known method of chemical analysis of a fertilizer mixture can the materials used in making that mixture be determined. And finally, despite an apparent assumption by the Court below, nowhere in the previous South Carolina fertilizer law is there any requirement of any disclosure on the container or tag of the sources of phosphoric acid or of potash—such disclosures offering no possible benefit to users of fertilizer, as we shall hereinafter show.

There is nothing in the amendment nor in the record of the testimony to warrant that any carriers, whether "major" or "minor", of plant food, might be omitted from the required statement; and the history of the Act and its phraseology, and the testimony given in connection therewith, most strongly indicate that it was the actual intent and purpose that the poundage and analysis of each of the materials going into the particular one hundred pound lot should be required.

The language itself is so clear as hardly, under accepted rules, to be open to judicial construction. But if any support for this position were needed it would be found in the affidavit of Senator J. Strom Thurmond, placed in evidence by the defendants. Senator Thurmond introduced the amendment on behalf of the Committee on Agriculture of the Senate and was "actively identified with its passage." He says in his affidavit:

> "It is highly important that the farmers know the amount of each material used to supply the phosphoric acid, ammonia and potash. A practical illustration of this fact is that for the production of quality tobacco a farmer should know the amount of chlorine and magnesium carried by the potash source. The presence or absence of calcium, magnesium, chlorine, manganese, iodine, and other so-called minor plant foods and the amounts of acid, neutral, or alkaline reacting material in the mixture is information that the farmers must have for intelligent and efficient use of artificial fertilizers." (R. 31-32)

This affidavit is the only evidence in the record which has any bearing on the question of the intention of the legislature in this respect, and the intention as thus indicated by Senator Thurmond accords exactly with the words of the law.

One of the defendent's witnesses took the position, apparently at least, contrary to Senator Thurmond's affidavit, that the word "analysis" in the amendment refers only to the three major plant food elements, phosphoric acid, nitrogen and potash, but this statement was merely a personal opinion and not to be considered as evidence of the legislative intent, the witness not even being a member of the legislature. (R. 130) Nor does this view find any justification in Section 6366 of the 1932 South Carolina Code, to which the Court below referred for support. That section has been law for many years. It provides, in part:

> "Every person or corporation, before selling or offering for sale in this State any commercial fertilizer or fertilizing material shall brand on each bag or pack-

age the brand name of the fertilizer, the weight of the package, the name and address of the manufacturer, and the minimum percentage only guaranteed to be present of available phosphoric acid, of nitrogen (ammonia equivalent), and of potash soluble in water. The items shall be printed on the package in the following order:

Weight of each package.
Brand name or trade mark.
Guaranteed analysis:
Available Phosphoric Acid .....per cent.
Ammonia Equivalent of Nitrogen .....per cent.
Potash Soluble in Water .....per cent.
Name and address of the Manufacturer."

The word "analysis" is not there defined, though the lower Court seemed so to think, but is used only in connection with the additional word "guaranteed", and in that combination as a general term *to characterize a specific requirement, which had already been made,* that the minimum percentage of available phosphoric acid, nitrogen (ammonia equivalent), and potash guaranteed to be present be stated on each bag or package. If the legislature had intended that in the challenged amendment the word "analysis" should have this restricted meaning, a few words limiting its meaning to the content of phosphoric acid, ammonia, and potash would have accomplished that intent.

It is evident, even upon casual reading, that so to restrict the meaning of the word "analysis" in the amendment would make the amendment self-contradictory. If "analysis" refers only to the three major plant food elements, phosphoric acid, nitrogen, and potash, how could there possibly be an analysis of "each plant food element" as required by the amendment? No one has contended that the plain words "each plant food element" include only the three major plant food elements, and obviously no such contention could be sustained. Even defense witnesses discussed a number of "minor" plant food elements. It is obvious that, whatever may be the industry understanding of the word "analysis" in its general connotation, a definition

which contemplates only the three major plant food elements could not possibly be applicable in the challenged amendment. The word in this place could not possibly include less than a determination of all plant food elements contained in each material used in the manufacture of mixed fertilizer. It may mean more and may include also a determination of every element, whether plant food or not, contained in each material so used.

(b) As to sufficiency of a statement of "pile averages" as compliance with the amendment:

As a further means of avoiding the extraordinary expense, which loomed in prospect, of complying with the challenged amendment the Court reached the conclusion that "a reasonable interpretation of the Statute by the enforcement agencies * * * would be satisfied if the revelation on the tag showed the general average with respect to all items of information contained on the tag coming from an honest desire to make the pile of five thousand tons of uniform composition." (Opinion, R. 152)

Frankly, we do not understand this language, but reading it in connection with statements and questions by members of the Court during the hearing below and waiving for the moment the confusing effect of the uncertain barometer of "an honest desire to make the pile of five thousand tons of uniform composition," we may state a possible meaning of the Court's conclusion as follows:

> It will not be necessary to show on the tag attached to a sack of fertilizer mixture the number of pounds of each material used in manufacturing each 100 pounds of the mixture contained in that sack. It will be sufficient, instead, to state on 50,000 identical tags to be attached to the 50,000 sacks filled from the 5,000-ton storage pile (1) the number of pounds of each material that would be in each sack if each of the materials used in making the 5,000 tons were equally divided among the 50,000 sacks; and (2) the average analysis of each material used in the manufacture of the 5,000 tons.

This conclusion is based upon a finding that the method of mixing fertilizer actually in use "results in a practically

uniform composition in every part of the resulting pile of fertilizer." This finding in turn is based solely upon the testimony of defendants' witness Geraty, an admittedly uneducated layman with no technical training or experience. (Findings of Fact IV, R. 172)

This witness testified in effect that fertilizer was stored in cone-shaped piles and that each lot dropped on the top of the cone-shaped pile was evenly distributed over the entire pile, and that when the mixed fertilizer was taken out of the pile an average of the entire pile would be removed in each bag. (R. 123-124)

The Court below went much further than even this contention and found, in effect, that each lot dropped on the top of the cone-shaped pile would be intimately mixed and intermingled with each other lot throughout the entire pile.

In Figure 1 (p. 36) we graphically represent a cross section of a pile of fertilizer as it would appear if dumped as described by this witness. All of the fertilizer in the pile is of the same grade and of the same agronomic value, but each one of the three mixtures indicated by the three sections of Figure 1 contains at least one material whose analysis was different from the analysis of the same material used in either of the other two mixtures and whose poundage in each of the mixtures was therefore different. The area of triangle marked I represents the first mixture made. When it became necessary to use a material of a different analysis, a second mixture (II) was produced. When dumped, mixture II did not mix with mixture I, but spread out over the top of mixture I in the form shown as II in Figure 1. When it again became necessary to use a material of a different analysis, mixture III was produced, and again there was no mixing of III with II and I when dumped, but III spread out over II as shown. Under the laws of physics solids do not mix in the manner found by the Court below; only miscible liquids would act as described by the Court. At the end of the curing period the cone-shaped pile would be found, according to evidence, to have hardened into a solid mass. Fertilizer is shipped in individual bags. In the

preparation of the bags of fertilizer for shipment, pieces of the solidified mass would be picked off, beginning naturally at the edge of the pile, shoveled into wheelbarrows, transported to the machine, ground, screened, and placed in the bag. In this process only goods of mixture III would be removed until the line AA was reached, and none of mixture II or of mixture I would be in the bags filled from this part of the pile. Unequal portions of mixture III and mixture II would be in the fertilizer removed for bagging between lines AA and BB. At no time even theoretically would an "average" of all three mixtures be obtained except exactly at the line CC. In practice, danger of caving of the pile, with resulting injury to workmen, would prevent working along the perpendicular line CC, and the top would have to be thrown down with dynamite, or otherwise, to remove such hazard. After the line CC had been passed, the same combination of mixtures described above, but in reverse order, would be removed. It is obvious that no sack of fertilizer would contain an "average" of the materials used in manufacturing the pile.

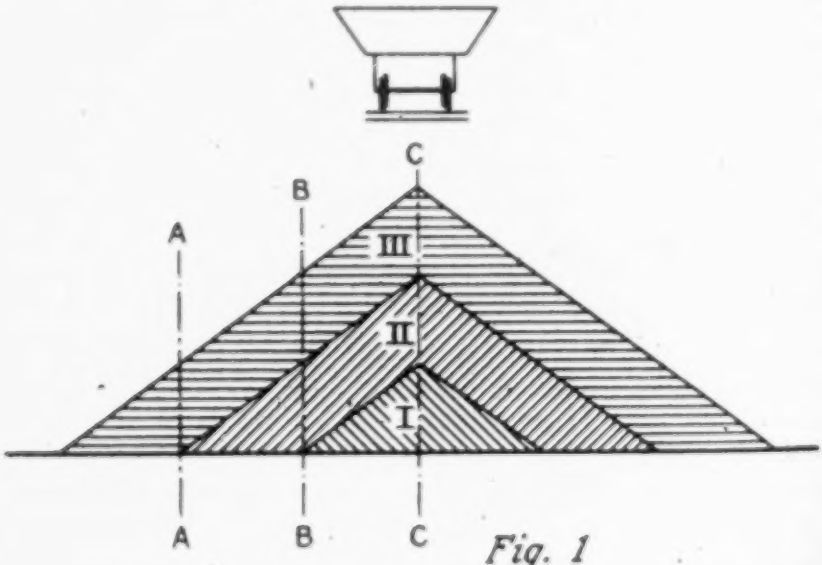

Fig. 1

Two of appellants' witnesses, experienced manufacturers, testified that fertilizers were dumped into storage in piles of definite width and height and of a length necessary to make the volume of the required tonnage, that is, dumped into storage bins, as recognized by the Court below. (Opinion, R. 151) One of these witnesses, Hanahan, testified that owing to the dimensions of his plant a 5,000-ton pile in his plant would be 400 feet long. (R. 72, 82-83) A third witness for appellants, McCarty, also having many years of actual experience, testified that it was common practice, when part of a storage pile had been shipped, to replenish the pile by filling the emptied space with newly mixed goods to cure while the remainder of the original pile was being shipped, thus providing additional capacity for the plant. (R. 76). It is obvious that this practice of replenishing could not be followed if piles were cone-shaped and that it precludes any chance of intimate admixture in the entire pile and completely negatives the idea of an "average" being contained in each bag.

In figures 2, 3, 4, and 5 we have illustrated graphically four progressive stages which would take place in the filling of a storage bin of mixed fertilizer as described in the testimony of appellants' witnesses. Of course, in practice many more such stages would take place.

Figure 2 shows a cross section of a bin into which has been successively dumped from an overhead car or conveyor three different mixtures of the same grade, I, II, and III. When the peak of the pile reaches the level of the car tracks or conveyer, obviously no more can be dumped, so in order to use the entire capacity of the bin, the top of the pile would have to be thrown down into the lower angles of the bin as shown in Figure 3. Another mixture (IV) is then dumped on the flattened out pile and assumes, as the bin fills, the position shown in Figure 4. When the track level is again reached, mixture IV is distributed to the sides of the bin and mixture V dumped on top and spread out until the bin is completely filled and a cross section would be as shown in Figure 5.

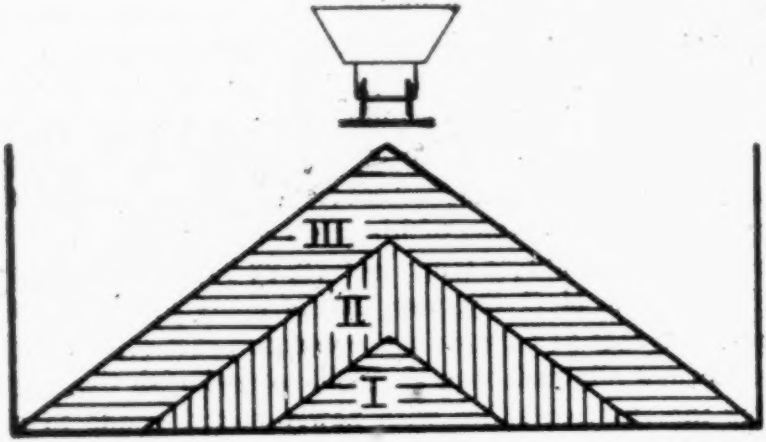

Fig. 2

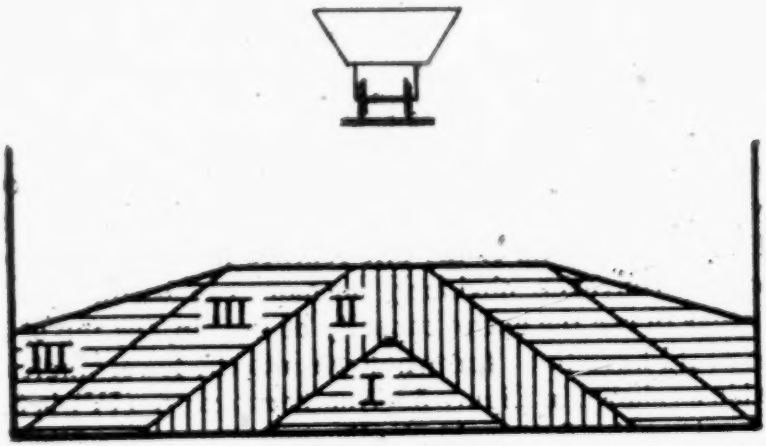

Fig. 3

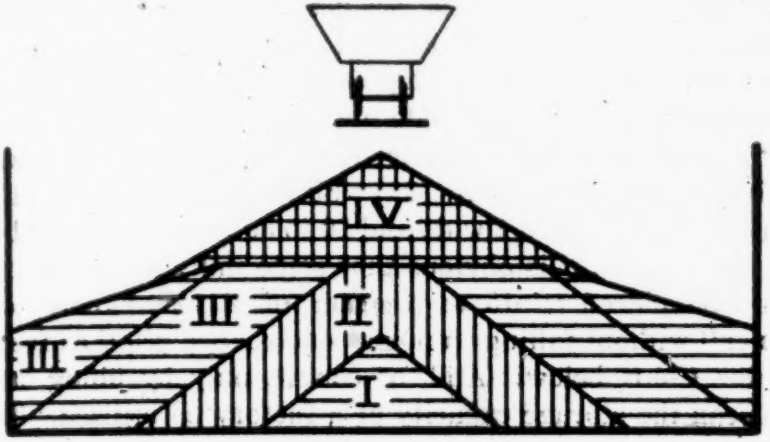

Fig. 4

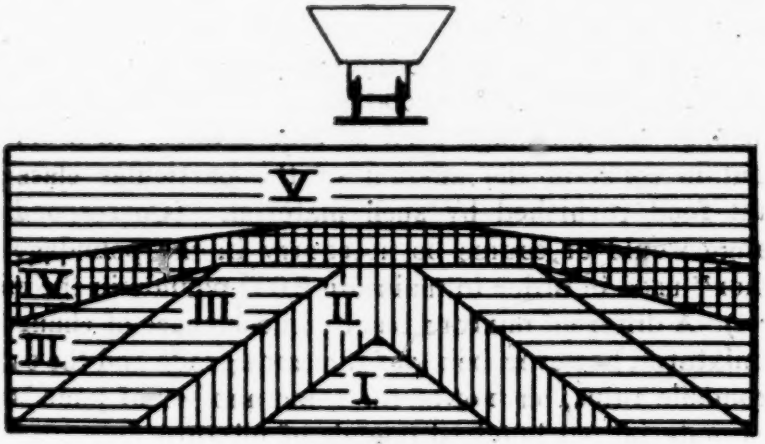

Fig. 5

In piles such as the witnesses described, whether 400 feet long or shorter, it is quite evident that no mixing could possibly occur of fertilizer dumped onto the opposite ends of the piles, and that there could not possibly be a distribution of "part of each small mixture throughout the entire pile." (Findings of Fact IV, R. 172) Likewise, in order to fill a bin such as one 60 feet wide and 20 to 30 feet deep described by one witness, it is obvious that some individual mixtures must be placed "into one corner of a rectangular container" without falling "upon a cone-shaped pile" as found by the Court below. And, of course, only by filling such bins can the storage capacity of a factory be utilized. The volume of a cone-shaped pile is only approximately one-fourth that of a cubical pile of the same base and height, so that any given floor space would store only one-fourth as much fertilizer in cone-shaped piles as in bins of the same height.

In our discussion of the mixing and storing of fertilizer as illustrated by Figures 1, 2, 3, 4, and 5 we have heretofore based our explanation on the fact that each different lot (generally a carload) of any given fertilizer material contains a different per cent of plant food from that contained in any other lot. Each time the manufacturer used a material with a different plant food content it became necessary to change the poundage used of that material in order to maintain constant the amount of the particular class of plant food furnished by such material. (Corresponding change would of course be necessary in the poundage of "filler" used in order to maintain 2,000 pounds in the mixture.) A different mixture results in each case of change—all mixtures, however, being of the same grade and the same agronomic value, but not of the same number of pounds of each material per hundred pounds of mixture.

However, the Figures are illustrative also of another kind of variation as to materials used in manufacturing the fertilizer in a storage pile. If, as has already been discussed, one nitrogen-bearing material is used instead of an-

other nitrogen-bearing material "of the same class" and "of approximately equal agricultural value", the physical variation between the several mixtures is much more decided than where the difference is merely in the plant food content of different lots of the same material, though again, the grade, agronomic value, and amount of each class of plant food are the same. For example, if a manufacturer desired one of his fertilizers manufactured for a particular use to contain 1 per cent of nitrogen in the form of nitrate nitrogen he could obtain this amount of nitrate nitrogen from the source-material nitrate of potash, which material according to Moore's Dictionary of Fertilizer Materials (introduced in evidence) contains on the average approximately 13.2 per cent nitrogen (in the nitrate form) and 44 per cent of potash. Approximately (dependent on the actual nitrogen content) 150 pounds of this material in 2,000 pounds of mixture would furnish 1 per cent of nitrate nitrogen in the mixture. If adequate supplies of nitrate of potash failed or its price advanced unduly, the manufacturer could substitute the material nitrate of ammonia (containing 17.5 per cent of nitrate nitrogen and 17.5 per cent of ammoniacal nitrogen) as his source of nitrate nitrogen without in any way changing the amount of that form or of the class of plant food and without affecting its agronomic value. Approximately 115 pounds of nitrate of ammonia would be necessary. If such a change were made, the amount of potash that had been furnished in the nitrate of potash would of necessity have to be supplied by some other material which would furnish potash. Likewise the ammoniacal nitrogen supplied by the ammonium nitrate would replace a similar amount of that form of nitrogen that had been furnished by some other material furnishing nitrogen of the same class.

For similar reasons it might later become necessary to seek yet another source of nitrate nitrogen, and nitrate of soda could be used. One hundred twenty-five pounds of this material (containing 16 per cent of nitrate nitrogen) in

a ton of mixed fertilizer would furnish 1 per cent of nitrate nitrogen in the mixture. The ammoniacal nitrogen that had been supplied by the nitrate of ammonia in the last described mixture would of necessity have to be furnished by some other material furnishing that form of nitrogen.

As further illustrations of this situation we show below four possible formulas which, when used in the factory, will produce mixed fertilizers of the same grade and whose plant food is not only of the same agronomic value and effect but is also of identical chemical nature.

No. 1

1000	lbs.	superphosphate 16%
105	"	nitrate of soda 19%
80	"	sulphate of ammonia 25%
100	"	cottonseed meal 7%
60	"	fish meal 10%
70	"	animal tankage 10%
200	"	manure salts 20%
385	"	filler
2000		

No. 2

760	lbs.	superphosphate 21% *
105	"	nitrate of soda 19%
80	"	sulphate of ammonia 25%
100	"	cottonseed meal 7%
60	"	fish meal 10%
70	"	animal tankage 10%
200	"	manure salts 20%
625	"	filler
2000		

* Material changed

No. 3

1000	lbs.	superphosphate 16%
105	"	nitrate of soda 19%
80	"	sulphate of ammonia 25%
100	"	cottonseed meal 7%
100	"	acidulated fish 6% *
70	"	animal tankage 10%
200	"	manure salts 20%
345	"	filler
2000		

No. 4

1000	lbs.	superphosphate 16%
105	"	nitrate of soda 19%
20	"	anhydrous ammonia *
100	"	cottonseed meal 7%
60	"	fish meal 10%
70	"	tankage 10%
200	"	manure salts 20%
445	"	filler
2000		

* Material changed.

The difference between Formula 1 and Formula 2 is that in the former *superphosphate containing 16 per cent* of available phosphoric acid was used and in the latter *superphosphate containing 21 per cent* of available phosphoric acid was used. Seven hundred sixty pounds of 21 per cent superphosphate furnishes the same amount of available phosphoric acid as 1000 pounds of 16 per cent superphosphate. Naturally, it will be necessary to include 240 pounds of additional filler in the mixture made on Formula 2 in order to make up the 2000 pound batch of the mixture.

Formula 3 differs from Formula 1 in that 100 pounds of *acidulated fish* analyzing 6 per cent ammonia is used in place of 60 pounds of *fish meal* analyzing 10 per cent of ammonia. Both of these materials are made from the same sort of fish refuse but by different processes. The plant food furnished

by the different poundage specified of each is exactly the same in quantity, in agronomic value and effect, and in chemical nature. Again the filler must be adjusted to make a ton batch.

Formula 4 differs from Formula 1 in that 20 pounds of *anhydrous ammonia* which contains 100 per cent ammonia is used in place of 80 pounds of *sulphate of ammonia* which contains 25 per cent of ammonia. Again the quantity, agronomic value, and chemical nature of the plant food furnished is in each case the same. The necessary filler adjustment must, of course, again be made.

Although the plant food per hundred pounds in each of the four mixtures made on these four formulas was the same in quantity, in agronomic value and effect, and in chemical composition, yet under the challenged amendment each of these mixtures would require a separate tag since each contains one material different in name from a corresponding material in each of the other three, and it would be necessary completely to segregate each mixture into a separate pile in storage.

It is obvious that if through such a change different materials were used at opposite ends of a long pile, the idea of "averages" as described by the Court below, would again have no foundation in fact. If the tag attached to every sack stated, as the content thereof, not the actual poundage of materials contained therein, but instead the "average" of the pile, such statement would be utterly misleading. In no sack would an "average" of the pile be contained, and a sack filled from one end of the pile would contain none of a material used only in mixing those batches stored at the other end of the pile. In fact an "average" poundage statement of each separate material would be of no value whatever and at best would disclose nothing more than has long been disclosed in accordance with South Carolina law, which requires a guarantee of the two classes, water-soluble and available water-insoluble, of nitrogen. Thus a

statement of "average" poundage would destroy any effect of the amendment.

In its findings of fact in regard to the storing of mixed fertilizers, the lower Court apparently gave consideration to the testimony of only one witness, Geraty, a layman with no technical education, whose testimony on this point was, by his own admission, based on casual visits to fertilizer plants, and completely ignored the testimony of three witnesses, Moore, McCarty, and Hanahan, all technically educated and with many years of experience in the actual operation of fertilizer factories. And even the witness Geraty testified that he would not say that fertilizer is not stored in long piles but merely that all the piles he had seen were cone-shaped. (R. 124)

It is quite apparent that the lower Court, in making its finding of fact as to uniformity of a pile of fertilizer, inadvertently overlooked, for the moment, the fact that the *fertilizer is actually stored in bins.* As already pointed out, the Court knew this fact and referred to it elsewhere (Opinion, R. 151); the oversight at this point is regrettable. This fact entirely overthrows defendants' contention and the Court's finding in this respect.

In addition, we have shown conclusively that such uniformity would not exist *even if the piles were cone-shaped.* (See Figure 1)

What we have said demonstrates conclusively that under any conceivable condition the statement of "pile averages" as contemplated by the Court below not only would not be in compliance with the law as written but would be misleading and would not give to users of fertilizer the information specified by the challenged amendment.

We desire to point out, finally, that this "pile average" interpretation of the amendment would make it subject to the individual consciences of manufacturers, in that the "averages" which would constitute compliance with the amendment must be such as would arise from "an honest desire to make the pile of five thousand tons of uniform

composition." Men would quite honestly differ as to what would be necessary to bring about uniformity of piles and there would be no uniform rule of conduct and no uniform results.

The Court below found that the additional expenses of manufacturing fertilizer due to operation of the challenged amendment "will not be so great as to render the cost of the manufacture of the finished product prohibitive and out of line with the probable increase of prices which the actual trade would bear." (Findings of Fact II, R. 171) It also found that in "sporadic cases" in which fertilizer manufacturers have mixed fertilizers for farmers in accordance with the farmers' own special formulas, a charge of from 50 cents to $2.50 per ton has taken care of the additional expense (Opinion, R. 152-153), and concluded that "approximately the same extra charge will offset the increased costs and trouble in the future." (Findings of Fact V, R. 173)

However, it is apparent that the extra charge that heretofore has been made for mixing in accordance with special formulas did not cover all the extra expense that would be imposed upon the manufacture of fertilizer by the challenged amendment. The testimony on the point (R. 79) shows that such charge included only the extra charge for manufacturing in small quantities. As indicated by the Court, such manufacturing was done sporadically, and naturally the extra charge did not cover the additional expense of enlarged storage space, additional machinery, extra bookkeeping, and the like, which would be necessary under the amendment which would change the whole set-up and course of fertilizer manufacture.

It is equally apparent that the trade would not and could not absorb the extra expense that would *necessarily* be imposed upon manufacturers through the operation of the amendment. Passing on of this extra cost to the consumer would reduce the amount of fertilizer purchased, in accordance with the well recognized economic principle that changes in price influence the effective demand. Resistance

to substantially higher prices for fertilizer would be particularly strong because of the well-known conservatism of the farmer, who considers frugally all expenditures made by him.

Throughout its discussion, in the "Opinion", of appellants' contention that the expense of complying with the amendment would be confiscatory, the Court below relied on its expectation that the State enforcement agencies (particularly Clemson College) would adopt what it called "reasonable" interpretations of the law, which would obviate confiscatory compliance expense. To substantiate this expectation the Court said:

> "It is important to note that several of the key phrases in this Statute have occurred from time to time in previous statutes regulating the fertilizer business and have been given a reasonable and sane construction by the enforcing agencies. We take occasion at this point in our Opinion to call particular attention to this matter because we think that it is vital to the correct understanding of our decision. • • • It is significant to here point out that even where the phrase 'chemical analysis' has been used in previous statutes, such chemical analysis has been construed to be sufficient if it shows the three major plant foods with which the farmers were familiar and about which they desired knowledge in making their choice of fertilizer."(Opinion, R. 150-151)

This statement is erroneous. The record does not show that the enforcing agencies have ever construed, in connection with a previous statute, any "key phrase" or word occurring in the open formula statute, nor do we have any knowledge of any such construction. Indeed there would seem to have been no occasion for any such construction of any such phrase or word. The phrase "chemical analysis" does not occur anywhere in the previous fertilizer-regulating statutes, and therefore could not possibly have been construed by enforcing agencies.

As to regulations, Section 6385 of the 1932 South Carolina Code provides:

> "The Board of Trustees of the Clemson Agricultural College of South Carolina shall have authority to establish such rules and regulations in regard to the inspection, analysis and sale of fertilizers and fertilizing materials as shall not be inconsistent with the provisions of this Act, and as in their judgment will best carry out the requirements thereof."

An examination of this section and the challenged amendment gives no warrant whatsoever for the assumption by the Court below, and its findings upon that assumption, that the enforcement agencies (particularly Clemson College) would hold, or have the authority to hold, that a statement of the average content of a 5,000-ton lot was a compliance with the amendment requiring—

> "That the amount and analysis of each material, or source, of each plant food element used in manufacture, of a fertilizer mixture containing two or more plant food elements be stated on a tag attached to each sack or container, such amounts of materials to be stated in pounds *per hundred pounds of mixture contained in the sack or other container.*" (Italics added)

The Court below impliedly, if not expressedly, admits that if the actual materials could be ascertained which went into each particular 100-pound sack, filled out of a 5,000-ton mixture, the poundage of such materials, and the analyses thereof, would not be the same as the average of the poundage and of the analyses of the 5,000-ton lot. In other words, the Court admits that a statement of the poundage and the analyses in terms of the 5,000-ton lot average would not be an accurate statement, but impliedly or expressedly states that the law empowers and authorizes the enforcement authorities to validate an inaccurate statement as being an accurate statement, and an untrue statement as being a true statement.

Section 6385 does not, either by direct terms or by implication, give the enforcement agencies authority to add to or take from the amendment in the slightest degree. All that it does is to give the enforcement agencies authority to establish rules and regulations in regard to inspections, analysis and the sale of fertilizers—how and under what conditions inspections shall be made, prescribing how and by whom analyses shall be made, etc., rules and regulations such as were heretofore made by them. There is nothing in the amendment which either in direct terms, or by implication, authorizes Clemson College to give the force of truth to a statement of poundages and of analyses which is not true.

If the legislators had intended average contents—weights and analyses—phraseology could have readily been employed which would have unequivocally expressed that intent. That such was not the intent and that it was the definite intent to require the actual poundage of each material and the actual analysis thereof, in each specific bag, is clearly shown by the fact that the legislature did not stop with prescribing that the amounts of materials are to be stated per 100 pounds of mixture, but narrowed such 100 pounds of mixture to that *contained in each sack or other container.*

It is too obvious to warrant elaboration that the actual poundage of the materials which actually went into the specific 100-pound sack, is meant, and, of course, it is obvious that the specification of the materials, the poundage and the analyses provided for by the amendment are of the materials that went into *each sack,* and not of materials that went into *other sacks.*

Does the Court hold that, if a manufacturer were prosecuted for a violation of the section, proof that a sample taken from the other end of a 5,000-ton pile conformed to the statement on the sack or sacks in connection with which the violation was claimed, would be a valid defense to such prosecution? Let it be remembered that the South Caro-

lina law imposes upon the sale of "misbranded" fertilizer a penalty equal to the selling price of each separate package so sold. And under the law as correctly stated by the Court (Opinion, R. 153), any regulations issued by Clemson College would not be binding in a lawsuit between a manufacturer and a buyer of fertilizer if the buyer should assert that the fertilizer purchased did not conform in fact to the number of pounds of material per hundred pounds of mixture, or to the analysis of any material, as published on the tag pursuant to the amendment.

Does the Court mean that citizens of South Carolina engaged in a legitimate business must rely for their protection in such circumstances upon an unmaterialized regulation of an administrative board which, even if issued, would be inconclusive at law? The danger of destruction of appellant's property is too great for its avoidance to rest on mere premise.

This suit was not filed until July 22, 1936. (R. 2) The open formula amendment was to become effective under its terms on August 1, 1936, more than three months after its passage.(R. 6) As was brought out in the evidence, the plaintiffs, before filing the suit, were waiting for the issuance of regulations. The Secretary of The National Fertilizer Association late in July telegraphed the Secretary of the Board of Fertilizer Control at Clemson College inquiring about regulations and was told that none had been issued. (R. 87) Before the suit was begun plaintiffs' counsel, as was conceded by defendants' counsel at the hearing, conferred with a committee of the Clemson Trustees regarding the amendment and the contemplated suit, and still no regulations were issued. As was stated in open court by defendants' counsel, Clemson College merely sent each fertilizer manufacturer a copy of the amendment and told him that they expected him to comply with it.

The only inference that can be drawn from these facts is that the Trustees themselves felt they could do nothing to modify the stringent definiteness of the amendment and

that manufacturers would have to comply with it as written. No member of the Clemson Board took the stand to say what the Board would do, although two were present at the Asheville hearing. And even if ameliorating regulations could be lawfully made, suggestions that they will be made hereafter cannot avail the defendants in this suit. Clemson Trustees had more than three months after the enactment of the amendment in which to issue regulations and did not do so. The facts are that there are no regulations and that fertilizer manufacturers are facing stern facts and positive provisions of law which threaten destruction of their property and not theories as to the possibility of action by an administrative board.

The Court found that by the amendment the manufacturers are required to state not only the percentage of each plant food element used in the manufacture and the source of that element in general terms—

> "but to state in addition the number of pounds of each particular source, or carrier used in each one hundred pounds of the mixture *contained in the sack of fertilizer.*" (Italics added) (Findings of Fact VII, R. 163)

also to the same effect—

> "The 1936 Amendment requires the fertilizer company to state on its tag not only the source of each major plant food element but to go further and reveal the *actual number of pounds of source used* to obtain the percentage of each major plant food element shown in the analysis of the final mixture." (Italics added) (Findings of Fact VIII, R. 163)

Yet, at as a subsequent point, to save the Act from being confiscatory, the Court said:

> "The force and effect of the Amendment now under consideration is simply to add to this analysis a quantitative statement showing the *relative* proportion of the various sources which are mixed together to form the

final mixture of fertilizer." (Italics added) (Findings of Fact I, R. 176)

meaning the average of the 5,000-ton lot and not the content of the sack or sacks, the subject of the sale and inquiry. There is noth g in the Act to suggest any "relative proportion". The amendment requires the statement to give the amount of "each material, or source, of each plant food element used • • • in pounds per hundred pounds of mixture contained in the sack" and the analysis of each.

As we have already pointed out, the Court below grounded its finding that the amendment is constitutional upon its definition of "analysis" and its theory as to the use of "pile averages" in complying therewith. We have now shown that as to each of these points the Court's views are vaguely expressed, lacking in clarity, and self-contradictory, and are not supported by the evidence, by principles of construction, or by the language of the statute; and that under the most favorable view of the Court's construction it would destroy the amendment, since the information printed on the tag under that construction would be obviously false and misleading. There is no logical conclusion in the whole matter except that the expense of complying with the statute would be confiscatory and hence the statute is unconstitutional.

II. The Amendment Would Destroy the Salability and Value of Appellants' Fertilizer Manufactured Prior to its Enactment and Still on Hand, and so Deprive them of Their Property Without Due Process of Law.

The Court will note and the record shows that the fertilizer industry in South Carolina is highly seasonal. The farmers in that State plant their crops, particularly cotton and tobacco, in the spring; and after purchasing their fertilizers in February, March, or early April they do not purchase again until the spring of the next year. (R. 68) Manufacturers therefore have a "carry-over" until the follow-

ing season. In addition, the spring of 1936 was unusually cold and wet, preventing farmers from planting acreages as they had planned and leaving more than the usual amount of "carry-over" in the hands of manufacturers and dealers. The witness Wright testified that his company had on hand about 4,200 tons worth fully $75,000. (R. 77, 31, 53) Another manufacturer had on hand about 1,000 tons. (R. 75-76) The greater part of 1,200 tons owned by still another was manufactured before April 6, 1936. (R. 21) As to such fertilizer, it is physically impossible for manufacturers to comply with the amendment. (R. 70)

The process of manufacture has been described, and a manufacturer, of course, knows what materials he put into the storage pile of any such fertilizer. What he does not know, and cannot possibly ascertain, is the number of pounds and the analysis of each material used in the manufacture of any sack of the fertilizer. (R. 15-16, 19, 27, 52, 70) This was conceded by the defense. (R. 131) This situation is due to no fault of the manufacturer. When this fertilizer was being mixed, there was no law requiring him to state on the tag or container or otherwise the number of pounds and the analysis of each material used in its manufacture. All that was required of him—and this is the only really important point agronomically and economically—was that he should see to it that all the fertilizer placed on a particular curing pile contained certain amounts of plant foods of certain classes guaranteed by him to be contained therein and obtained from the materials listed on his source tags.

The different materials or sources vary in analysis, and the number of pounds necessary to be used to obtain the same amount of plant food from any given material varies accordingly. Let us assume that a manufacturer is preparing a ton batch of mixed fertilizer; that his formula calls for the use of organics providing both soluble and insoluble nitrogen; that tankage is being used as the source of 24 pounds of the nitrogen that is to be derived from organic sources.

It would be necessary to use 200 pounds of tankage analyzing 12 per cent of ammonia, but if tankage analyzing only 8 per cent of ammonia were used, 300 pounds would be needed—an increase of 50 per cent in the number of pounds of tankage used, without any change in the number of pounds of ammonia derived from tankage. Consequently, the manufacturer, as his process of mixing progresses, makes frequent changes, rendered necessary by variation in analysis, in the number of pounds of any specific material he uses in order to maintain the desired amount of plant food derived from that particular material. Or, as already pointed out, in mixing different batches of fertilizer he may use different materials to obtain the same class of plant food of the same agronomic value. When the fertilizer has been mixed and heaped up into huge curing piles, he cannot possibly reverse his process and say, as to any sack of the mixture, how many pounds of any particular material it contains or state the analysis of that material.

With respect to the mixed fertilizer on hand at the date of enactment of the amendment, the case of *Fougera and Company v. City of New York*, 224 N. Y. 269, is in point with the instant case and strikingly supports our contention that the amendment is unconstitutional. In that case, in which Mr. Justice Cardozo, now of this Court, rendered the opinion, the Court permanently enjoined the enforcement of Sections 116 and 117 of the Sanitary Code of the City of New York.

Those sections provided in substance that, with the exception of medicines prescribed by physicians, there should be no sale of patent or proprietary medicines in the City of New York unless

> "the names of the ingredients of every such medicine to which therapeutic effects claimed are attributed, and the names of all other ingredients except such as are physiologically inactive, shall be registered in the department of health."

The sections also provided that the names of ingredients when registered were to be

> "regarded as confidential and shall not be open to inspection by the public or by any persons other than the official custodian of such records in the department of health, such persons as may be authorized by law to inspect such records, and those duly authorized to prosecute or enforce the Federal statutes, the laws of the State of New York, both criminal and civil, and the ordinances of the City of New York, but only for the purpose of such prosecution or enforcement."

Any proprietary or patent medicine was to be deemed misbranded if the names of its ingredients were omitted or misstated. One who violated the ordinance was subject to punishment as for a misdemeanor and was also liable to a penalty of $50 recoverable in a civil action. The opinion states:

> "The plaintiff is engaged in the importation and sale, both wholesale and retail, of proprietary and patent medicines. * * * A large stock of drugs was on its shelves when the ordinance was passed. It does not know the names of the ingredients and cannot ascertain them. They are secrets closely guarded by the foreign manufacturers. In these circumstances, it insists that the ordinance is void.
>
> * * *
>
> "One other objection to the ordinance is yet to be considered. We think it points to a real defect, though one that amendment may correct. The ordinance does not except existing stores of merchandise in the hands of druggists or other dealers who do not know the ingredients and cannot state them.
>
> "That is the plaintiff's plight. Before the adoption of the ordinance, it had imported large quantities of drugs; it does not know the ingredients; and the foreign manufacturer will not reveal them. In effect, therefore, an absolute prohibition is laid upon the sale of its existing stock.

"Between absolute prohibition and a condition impossible of fulfillment, the distinction may be nominal. A different case would be presented if the ingredients were known. The dealer then would have himself to blame if he refused to state them. A different case would also be presented if he had acquired the stock after the ordinance was in force. He would then have made the purchase with knowledge of the restriction.

"That is not the situation in which the Fougera Company finds itself. It is not at fault, and it has had no warning. It has bought drugs which from their long years of use may fairly be presumed to be legitimate articles of commerce. Without warning and without fault, its right of property has been forfeited. There must be many others in a like predicament. *We do not need to say that there is no power even in the legislature to work this forfeiture.*" (Italics added.)

As to separability, the Court said:

"The defect is so far reaching, it is so deeply wrought into the substance of the law, that there is no opportunity to sever the good from the bad. (*U. S. v. Ju Toy*, 198 U. S. 253; *Hatch* v. *Reardon*, 204 U. S. 152; *Butts v. Merchants & M. Transp. Co.*, 230 U. S. 126; *Ill. Cent. R. R. Co. v. McKendree*, 203 U. S. 514; *Employer's Liability Cases*, 207 U. S. 463; *People ex rel. Isaacs v. Moran, supra.*)

"To do that we should have to rewrite the ordinance. It does not classify or except or excuse (*People v. Beaker Dairy Co.*, 22 N. Y. 416.) It touches all who sell. It does not err in some minor incident or in its effect upon a few. Its fault is inherent in its scheme and extends to many. There must be few druggists who can state the composition of every patent medicine upon their shelves."

The ordinance was held invalid, *as a whole*, on the ground that in its application to merchandise previously acquired it failed to save the rights of dealers unable to comply with its requirements.

As already pointed out, the parallel between this case and the instant case in this respect is evident. In the *Fougera* case, the dealers were unable to comply with the ordinance because they did not know what ingredients were contained in the medicines they had on hand when the ordiance was passed. In the instant case, the fertilizer manufacturers and dealers will be unable to comply with the amendment because they do not know the number of pounds or the analysis of materials used in the manufacture of fertilizer contained in any package on hand as of the date of enactment. In the *Fougera* case, the inability of sellers of proprietary medicines to comply with the ordinance made it invalid. In the instant case, the inability of the sellers of fertilizer to comply with the amendment makes it invalid.

Attention is directed here to the Court's holding that the different parts of the ordinance were inseparable and that in order to separate the good from the bad the Court would have to rewrite the ordinance, which did no classify or except or excuse, and that its fault was inherent in its scheme. The same thing is true of the challenged amendment. It does not classify or except or excuse. It touches all who sell. It does not err in some minor incident or in its effect upon a few. Its fault is inherent in its scheme and extends to many. There are more than a hundred manufacturers of fertilizer and more than three thousand dealers in fertilizer who are doing business in South Carolina. *Not one of them can state the number of pounds and the analysis of each material used in the manufacture of any sack of fertilizer mixed before April 6, 1936.*

While the Court did not agree to the contention that the ordinance, apart from its effect as to existing stocks, was an arbitrary exercise of the power of government, it is to be noted that there are two distinct points of difference between the requirements of the New York ordinance as to disclosure regarding ingredients and the South Carolina open formula amendment.

First, the New York ordinance required only that the *names of the ingredients* should be registered. *It did not require the amount of each ingredient or the analysis of each ingredient used to be stated.* It does not go so far in compelling disclosure of business information as does the present South Carolina law without the open formula amendment, in that such South Carolina law requires that there be disclosed *not merely the names of the ingredients but extensive information with reference thereto,* such as, the per cent of water soluble ammonia, the materials furnishing water soluble ammonia, the per cent of available water insoluble ammonia, and the materials furnishing water insoluble ammonia; the per cent of borax or other substance injurious to plants if in excess of limits prescribed by the Board of Trustees of Clemson College; that the availability of ammonia in any material must meet the requirements of the Board of Trustees of Clemson College; and the minimum percentage guaranteed to be present of certain elements, namely, available phosphoric acid, nitrogen (ammonia equivalent), and potash soluble in water.

Second, the information required to be given under the New York ordinance was not to be published to the world at large. The ordinance, on the contrary, *expressly provided that the names of the ingredients were to be regarded as confidential* and not to be open to inspection by the public or by any persons other than officials charged with the enforcement of the law. Under the South Carolina open formula amendment, on the other hand, the information required to be given on the tags would be published to the world, and one publication of a formula on one sack of fertilizer would be enough to destroy completely and forever the manufacturer's property in the formula.

The New York ordinance *did not require the disclosure of secret formulas*—or of any formula, for that matter—and its provisions did not even approach those of the previous South Carolina law, to say nothing of the challenged amendment, in this respect.

An earlier case, *Wynehamer* v. *People,* 13 N. Y. 378, (1856) is a leading case on the subject. In deciding that

case the Court said that intoxicating liquors are produced for sale and that the statute in question "annihilates the quality of sale, which makes them valuable to the owner"; that the statute substantially destroyed the value of liquor acquired before it became effective, thus arbitrarily depriving the owner of his property; and that the act was, therefore, unconstitutional. As the act made no distinction between liquor owned at the time it became effective and that acquired subsequently, it was declared unconstitutional *in toto* and not sustainable in respect to liquor of either class.

Doubtless, the liquor owned by New York manufacturers and dealers when the act became effective could have been shipped out of the State and sold in some other State, but this possibility did not prevent the Court from declaring the act unconstitutional. Naturally, the court was not concerned with possibilities in other states since these might change at any moment and were beyond the jurisdiction and control of the Court as well as of other branches of the New York government. The Court concerned itself only with New York law and its effect on property that might be affected by that law. So, the fact that fertilizer manufacturers, by reformulating their South Carolina goods and shipping them to some of the other states can, under the present law of such states, sell such goods in such states has nothing to do with the constitutionality of the South Carolina law. The laws of such other states are beyond the control of the South Carolina Courts and legislature and may be changed at any instant. The legislature of South Carolina cannot destroy property values in that State in reliance upon the assumption or attempted justification that the property may retain some part, or even all, of its value in some other State. The law of each State must stand or fall upon its own merits. If the challenged amendment "annihilates the quality of sale, which makes" the fertilizer "valuable to the owner," then it is void. As to such annihilation there is no dispute. As already shown, it would be impossible for manufacturers to comply, as to existing

stocks, with the amendment, and the penalty for selling without compliance is the selling price of the fertilizer.

And even if this Court were to look beyond the effect of the amendment upon the salability of the fertilizer in South Carolina, the undisputed testimony shows that the fertilizer cannot be sold in any other State without being reformulated, that is, remanufactured, and that the expense of reformulating the fertilizer and moving it into some other State would be so great as to amount to confiscation of property. (R. 78, 76) Elsewhere in this brief we have discussed the expense of complying with a statute as constituting a deprivation of property without due process of law, and that discussion is applicable here.

So far as we have been able to ascertain by diligent search, this Court has not passed directly on the question of the constitutionality of a State statute which outlaws or prohibits the sale of property existing at the time of its enactment. However, in two cases it has strongly indicated its approval of the doctrine laid down in the *Wynehamer* case.

In *Bartemeyer v. Iowa*, 85 U. S. (18 Wall.) 129, this Court said:

> "The weight of authority is overhelming that no such immunity has heretofore existed as would prevent State legislatures from regulating or even prohibiting the traffic in intoxicating liquors, *with a solitary exception. That exception is the case of a law operating so rigidly on property in existence at the time of its passage, absolutely prohibiting its sale, as to amount to depriving the owner of his property.* A single case, that of *Wynehamer v. People* (3 Kernan, 486) has held that as to such property the statute would be void for that reason." (Italics added)

> "But if it were true, and it was fairly presented, that the defendant owned the liquor at the time the State first imposed a prohibition on its sale, then we concede that two grave questions would arise: 1. Whether this would be a statute depriving him of property without

> due process of law; and secondly, whether if it were so, it would be so far a violation * * * in that regard as would call for judicial action by this Court?"

Again, in *Beer Company v. Massachusetts*, 97 U. S. 25, it was said:

> *"We do not mean to say that property actually in existence, and in which the right of the owner has become vested, may be taken for the public good without due compensation.* But we infer that the liquor in this case, as in the case of *Bartemeyer v. Iowa*, was not in existence when the law was passed. (Italics added)

The cases of *Mugler v. Kansas*, 123 U. S. 623, *Hamilton v. Kentucky Distilleries*, 251 U. S. 146, and *Jacob Ruppert v. Caffey*, 251 U. S. 264, were all cases involving limitations upon the sale of liquor; in none of them was there a statutory destruction of all value, but at most a lessening of value due to restrictions upon sales. This is also true of the *National Prohibition Cases*, 253 U. S. 350, where there was involved a *limited* prohibition of sale of goods manufatured before the amendment became effective, and where also, as pointed out by this Court, it was a *constitutional mandate or prohibition* that was being enforced.

But here, if the challenged amendment is upheld, all fertilizer on hand which was manufactured prior to the passage of the amendment will be completely outlawed and its value destroyed.

In our investigations we have found no case, either State or Federal, in which a statute has been held valid when it has been shown, as a ground of attack upon its constitutionality, that its effect was to prohibit absolutely the sale of goods lawfully acquired before the enactment of the statute.

If it be suggested that perhaps appellants, between April 6, 1936, the date of enactment of the amendment, and August 1, 1936, its effective date, could have disposed of their fertilizer manufactured prior to April 6, a sufficient answer will be found in the limited annual period during which the industry's products are sold. (R. 68)

The undisputed evidence will show, and the Court knows by common knowledge, that the market for mixed fertilizers in South Carolina is highly seasonal. The planting season for cotton and tobacco, for which practically all of the mixed fertilizer is purchased, begins and ends in the spring. After purchasing their fertilizers in February, March, or early April, the farmers do not purchase again until the next spring planting season. The market is practically closed and remains dormant in the meantime.

Likewise all fertilizers now on hand will be outlawed if the amendment is valid because as to them the manufacturer cannot comply with it. If it be said that manufacturers should have prepared themselves to comply with the amendment after its passage, then the answer is, as pointed out elsewhere, that they could not have done so except at costs so prohibitive as to amount to confiscation of their property.

III. The Amendment Would Destroy Appellants' Property Rights in Their Secret Formulas Used in Manufacturing Their Fertilizer, Which Have Been Developed at Great Expense Over Many Years, and so Deprive Them of Their Property Rights Without Due Process of Law.

That secret formulas are valuable property to their owners seems almost too evident to need discussion. Witnesses for appellants testified in detail as to the secrecy and value of their formulas. One of them said: We keep our formulas secret. Neither the farmers nor our competitors know their composition. And we do not know the composition of our competitors' formulas, though we have spent a good many dollars trying to find out." (R. 59) He said further that if his company's formulas became known and were obtained by competitors this might destroy the company's business. (R. 53) Another testified that he considered one particular secret formula belonging to his company to have a value of not less than $250,000. (R. 75) Even one of the defendants' witnesses, while deploring the

fact that formulas were secret, said that secret formulas were worth millions of dollars to their owners. (R. 122) This witness, Geraty, admitted that there are a number of outstanding judgments against him in favor of fertilizer companies (R. 131), and stated that he buys materials and mixes his own fertilizer. (R. 123, 131) Doubtless it would be very helpful to him to know the established formulas of successful manufacturers.

The Court below, in the "Opinion", expressed some doubt "whether these secret formulae and trade names belong personally" to appellants. Such doubt is based on the idea that, although appellants in developing their formulas have spent thousands of dollars in research and experimentation, "the experience of the farmers themselves," "the scientific revelations of Federal and State agronomists and lessons learned by Clemson College in its various experiment stations" have also made their contribution to the formulas. (R. 155) It scarcely seems necessary to point out that on this principle a secret formula in any industry would be almost an impossibility. The secrecy of formulas is certainly not dependent upon their containing some substance that no one other than the owner knows anything about. Formulas owe their secrecy, as well as their value, to some particular combination, unknown to anyone else, of well-known, or for that matter little-known, materials whose individual properties may be common knowledge, and to a similar skillful selection, combination, and utilization of scientific data. However, in the "Findings of Fact" the Court below seems to concede the secrecy and the value of appellants' formulas: "We find that the rights of several of the plaintiff companies in and to these secret formulae, to their trade names and to the trade-marks with respect to several particular brands are definitely enough shown to amount to property rights under the laws of the State of South Carolina and of the United States." (R. 179) If the secret formulas of several manufacturers are property,

surely all secret formulas of all manufacturers are property.

The fact that secret formulas are valuable to the farmer who uses the fertilizers and to the manufacturer who develops them through long years of experience and research is proved in appellees' exhibits D-2 and D-3. Both of these exhibits are advertising leaflets published by the International Agricultural Corporation giving the results of various experiments conducted by the State experimental stations in South Carolina, Georgia, Maryland, and Mississippi. These results are quoted in the exhibits to prove the importance of selecting the proper ratios or proportions of the different plant-food classes in order to meet the crop requirements on different soil types.

These exhibits also quote extensively from the testimonials and reports sent in by representative farmers who have used the various brands of mixed fertilizers. These testimonials cover the results in terms of the farmers' own observations of crop yields, crop quality produced, and comparisons with other mixtures.

One farmer reports: "Your International Rainbow Cotton Fertilizer is far superior to our own special mixtures from which we thought we were getting best results."

Testimony of this type coming as it must from a better than average farmer who has had his own special fertilizers manufactured for him indicates that the secret formulas developed by the fertilizer companies have a crop-producing power that exceeds that of the special mixtures prepared in accordance with the best judgment of the farmer despite his familiarity with his own soils and crops.

In other words, as proved by these many testimonials, the secret formula goods have consistently produced more profitable results than goods made on farmers' own special formulas, and have created a brand name and good-will value for their owners which are among the important assets of that company.

Furthermore one of the appellants' witnesses testified (R. 81-82) that his company sold a particular open-formula fertilizer one year at the request of a customer. Manufacturing competitors immediately offered to his customer and to other customers claimed duplicates of the mixture made on that open formula. The farmers had no assurance, and there were no known chemical methods by which they could determine, that the competitive mixtures so offered were the same as that manufactured on the open formula. Thereupon the witness's customer asked that no open formula be manufactured the succeeding year. The same witness testified (R. 84) that some farmers, availing themselves of the provision of the South Carolina Law without the amendment (1932 S. C. Code, Section 6367. Appendix) had fertilizers mixed for themselves according to their own specified formulas developed through their own experience on their own farms, and pointed out that it would be manifestly unfair to require that these farmers' formulas, their own property, should be disclosed for the benefit of their farmer competitors as would be required if the challenged amendment were enforced. (R. 84)

That trade secrets which include formulas are property rights which courts will protect in proper cases has been held consistently by the courts.

There was some comment by defendants' witnesses with respect to changes made from time to time in established formulas in the light of new discoveries and experiments. Such changes in no wise negative the value of the formulas. They are made, just as the formulas were originally established, as results of the investigations and studies made by appellants at great expense, and represent a continued spending of money to obtain something of value, to wit, practical scientific knowledge. As an illustration, formulas for cotton fertilizers were changed, when the boll weevil menace appeared, so as to hasten early growth and to develop the plant before the main brood of weevils appeared. The positive testimony of all appellants' witnesses as to the

cost and great value of their formulas must surely be accepted, without further comment, as fact by this Court. It is consonant with reason and the observation and experience of all men—the point need not be labored.

The Court below in the "Opinion" (R. 155), in discussing property rights in secret formulas, said:

> "It may seem hard that these secret formulae cannot be universally recognized and protected by the courts, but it is well established that secret formulae as well as other rights must frequently yield to the valid exercise of the police power of a sovereign State. The control of proprietary medicines by State and National (law?) is an exact analogy. If secret formulae of medicines for human consumption can be forced to revelation in the exercise of police power it seems to follow, as night the day, that secret formulae with respect to the supply of plant food must likewise yield to a reasonable and valid exercise of police power."

There is nothing in the record of this case in any way suggesting that there is any State or National drug law that requires a disclosure of the formula of any drug product. In fact, after diligent search we have been unable to find any law requiring such disclosures. Among laws enacted for the control of proprietary medicines, we have found none, either State or National, which goes beyond the requirement to show the presence and quantity of alcohol and of such substances as are poisonous, deleterious, and habit-forming. The evidence in this case does not show that the police power is invoked in the challenged amendment to protect the public against deleterious or harmful ingredients in fertilizer, but, even if such were the case, the present law without the amendment specifically provides protection against deleterious substances. (1932 S. C. Code, Section 6366, Appendix) There is no basis in fact or reason for this "analogy".

Secret formulas are property, and to deprive their owners of them without due process of law would be as viola-

tive of the Constitution as if some other form of property were involved.

Vulcan Detinning Co. v. American Can Co., (N. J.) (and note) 12 L. R. A. (N. S.), 102.
Stevens Co. v. Stiles, (R. I.), 20 L. R. A. (N. S.), 933.
Empire Steam Laundry v. Lozier, 44 L. R. A. (N. S.), 1160.
Chicago Board of Trade v. Christie G. & S. Co., 198 U. S., 250.
Associated Press v. International News Service, 245 Fed., 244, (C. C. A. 2nd Circuit 1917)

There is a paucity of cases in which this Court has dealt with the constitutionality of State laws requiring the disclosure of secret formulas. The point was referred to in *Savage v. Jones*, 225 U. S. 501, but was not decided, the Court saying:

> "The bill complains of the injury to manufacturers if they are forced to reveal their secret formulas and processes. We need not here express an opinion upon this question, in the breadth suggested, *as the statute does not compel a disclosure of formulas or manner of combination.* It does demand a statement of the ingredients, and also of the minimum percentage of crude fat and crude protein and of the maximum percentage of crude fiber, a requirement of obvious propriety in connection with substances purveyed as feeding stuffs." (Italics added)

The Court in *Corn Products Refining Co.* v. *Eddy*, 249 U. S., 427, had under consideration the constitutionality of a regulation issued pursuant to law which required a disclosure of the percentage of each ingredient in syrups. That case is not, however, authority in the instant case because it is easily distinguishable. The gist of the Court's decision is contained in the following quotation:

> "Evidently the purpose of the requirement is to secure freedom from adulteration and misbranding; the mischief of misbranding being that purchasers may be

misled with respect to the wholesomeness or food value of the compound. And it is too plain for argument that a manufacturer or vendor has no constitutional right to sell goods without giving to the purchaser fair information of what it is that is being sold. The right of a manufacturer to maintain secrecy as to his compounds and processes must be held subject to the right of the State in the exercise of its police power and in promotion of fair dealing to require that the nature of the product be fairly set forth."

The principles which the Court sets forth may be stated to be as follows, namely, that the purchaser should not be misled with respect to the wholesomeness or purity of the product sold; that the label should show the food value of the compound; and that a fair statement of the product or the nature thereof should be set forth. The Court in its decision does not go beyond these points.

The syrup in question in that case was composed of 85 per cent of corn syrup or glucose, 10 per cent of molasses, and 5 per cent of country sorghum. The present South Carolina fertilizer law without the amendment already requires a disclosure, already discussed, with respect to the ingredients far greater than was required by the regulation in the *Corn Products* case. This is evident from the following testimony of the witness Lodge, an experienced chemist:

"Glucose is a chemical compound, but corn syrup glucose is a solution of glucose in water. Molasses is purely a generic term. It means simply a solution of some sweet material in water and may come from many sources. It is produced by the evaporation of sap of certain plants of which sugar cane and beets are most common, though many others are used. So the term molasses does not designate quality or quantity and does not indicate from what source it comes. Sorghum is in the same class. When they designate it as country sorghum it is indicated that it is made by the grower of the cane on the farm, or in a small manufacturing plant. So, designating 85 per cent glucose means there is a solution of that in water and no account of how

much glucose nor of the origin of glucose which might come from corn or from syrups of whatever kind.

"The 10% of molasses might have any quantity and number of different sugars and a wide variety of flavors, and the same is true of sorghum. It seems to me a disclosure of the formula 85% of glucose or corn syrup, 10% of molasses, and 5% of sorghum would be analogous to saying that fertilizer was manufactured of material 50% bearing phosphate, 25% bearing potash, and 25% bearing ammonia and gives no more disclosure; whereas the present fertilizer act without the open formula amendment does give you definitely the quantity of the available plant foods and the classes of the materials and the materials furnishing those classes. The present law is very much more of a disclosure as to the actual nature of the materials themselves than the formula such as was indicated in the Corn Products case." (R. 80)

Had the regulation involved in the Corn Products case required a statement of the poundage, the detailed chemical analysis, and the source of the glucose, of the molasses, and of the country sorghum, it would have been comparable to the provisions of the South Carolina open formula amendment.

Furthermore, the amendment added to the present South Carolina law transcends the principles laid down by this Court in the Corn Products case. It requires more than a fair statement of the product or the nature thereof. In fact it requires a statement with respect to the product which is unfair because it imposes an impossible burden of expense upon the manufacturer in addition to the disclosure of his secret formlua. The effect of the required disclosures will also be unfair to the farmer because their obvious result will be that all manufacturers will cease their fertilizer experimental and development work which they have engaged in for years for the purpose of improving the efficiency and quality of their products. (R. 70)

Furthermore the disclosure would open the door wide to fraud. Any unscrupulous manufacturer under the amend-

ment could claim to duplicate exactly some long-established and well-proven formula of a competitior, yet use cheaper materials entirely different, and be secure in his knowledge that no known method of analysis would be able to prove his deception. (R. 21, 79) Not only would unfair competition be thus established, but the farmer would not receive the value for which he had contracted and paid.

As shown by the witness Lodge's testimony, the disclosure required in the Corn Products case was not in fact a disclosure of the manufacturer's secret formula. In the instant case there can be no question that a disclosure in compliance with the requirements of the open formula amendment will be a complete and full disclosure of the fertilizer manufacturer's now secret formula—a disclosure so searching and complete that it will give to his competitors the benefits and fruits of his years of research and experiment and investment represented in his secret formulas.

The very recent cases of *Old Dearborn Distributing Company* v. *Seagram—Distillers Corporation, Carl W. McNeil* v. *Joseph Triner Corporation, Pep Boys* v. *Pyroil Sales Company, Kunsman* v. *Max Factor & Company,* all decided on December 7, 1936, and reported in 81 Law Edition, at page 130, et seq., of advance opinions No. 3, clearly indicate that secret formulas are a species of property and as such entitled to protection against destruction. While it is true that secret formulas, as such, were not involved in those cases yet they dealt with the property in trade marks, trade names, brands, and the incident good will. The secret formulas of appellants are in like category and are the real basis for the value of appellants' trade-marks, trade names, brands, and good will. All of these inhere in the secret formulas and will vanish with their disclosure.

IV. The Amendment is an Unlawful, Unreasonable, and Unconstitutional Exercise of the Police Power of the State, in that There is No Necessity for Such Law.

(A) The Disclosures Required of Fertilizer Manufacturers by the South Carolina Law Without the Amendment are Sufficient to Permit Intelligent Selection of Fertilizer.

(B) All the Claimed Benefits of the Amendment can be Obtained by Legislation Which will not Deprive Fertilizer Manufacturers of Their Property without Due Process of Law and of a Type Which Has Been Enacted and Enforced in Other States.

A State cannot, under the guise of exercising the police power, arbitrarily or unreasonably deprive private persons of their property. Such taking of property must be justified by public necessity; otherwise it is without due process of law.

Graham v. *Gill*, 223 U. S. 643
Washington v. *Fairchild*, 224 U. S. 510.
Crawford v. *Topeka*, 51 Kan. 756.
Ex Parte Hayden (Cal.) 82 Pac. 315.

The evidence in the instant case shows beyond peradventure that there was and is no public necessity for the compulsory open formula amendment in that

(a) The information required by the present South Carolina law to be given on bags and tags by manufacturers is entirely sufficient for the farmer's protection and to enable him to buy fertilizer intelligently for his needs; and (b) even if additional information should be thought desirable for such purposes it can be provided for, as has been done in other States, by legislation that will not deprive fertilizer manufacturers of their property without due process of law by destroying the salability of goods manufactured before the enactment of the amendment, or by necessitating unreasonable expense of compliance, or by arbitrarily requiring a disclosure of their secret formulas.

The following shows in outline the regulatory requirements of the South Carolina fertilizer law as now in effect, without the challenged amendment:

A. Each manufacturer, before selling fertilizer, shall file with Clemson College

1: A true and correct copy of the printed label or stamp required to be printed on each package of the various brands which he proposes to offer for sale.

2. A certificate showing the source from which the phosphoric acid, ammonia, and potash guaranteed in each brand is derived.

3. A statement that any filler used is harmless and if soil has been used as filler that same was not taken nearer than 12 inches from the surface. (1932 S. C. Code, Section 6365. Appendix)

B. Each package shall have branded thereon

1. The weight of the package.
2. The brand name or trade mark.
3. Guaranteed analysis:
   The minimum percentage guaranteed to be present of
   a. Available phosphoric acid.
   b. Nitrogen (ammonia equivalent).
   c. Potash soluble in water.
4. The name and address of the manufacturer. (1932 S. C. Code, Section 6366. Appendix)

C. In addition there shall be printed on the package or on a tag attached thereto

1. The per cent of water-soluble ammonia.
2. The names of materials furnishing water-soluble ammonia.
3. The per cent of available water-insoluble ammonia.
4. The names of materials furnishing water-insoluble ammonia.
5. Whether the potash is derived from muriate or sulphate.
6. The per cent of borax or other substance injurious to plants if in excess of limits prescribed by the Board

of Trustees of Clemson College. (1932 S. C. Code, Sections 6366-6367. Appendix)

D. The ammonia in any material must have an availability meeting the requirements of the Board of Trustees of Clemson College. (1932 S. C. Code, Section 6382. Appendix)

E. Varying penalties are imposed upon the sale of fertilizer which does not meet the guarantee. A penalty equal to the selling price is imposed upon the sale of fertilizer (1) that is not properly branded and tagged or (2) that is "misbranded," that is, "carries any false or misleading statement upon or attached to the package." (1932 S. C. Code, Sections 6367, 6369, 6377, 6378, 6379. Appendix)

F. The right of farmers and manufacturers to contract for the manufacture of fertilizer by the use of certain specified amounts of certain specified materials is expressly recognized; and, under pain of damages as in accordance with general law and penalties as provided by the fertilizer law, such contracts must be complied with precisely as made. (1932 S. C. Code, Section 6367. Appendix)

In addition, a regulation promulgated by Clemson College and accepted and complied with by South Carolina manufacturers requires a statement whether the ertilizer is acid-forming or non-acid-forming. (R. 47, 52)

To show graphically the information furnished farmers under the working out of the foregoing requirements, we append a typical legend for a sack:

200 pounds
DIXIE COTTON GROWER
Guaranteed Analysis

Available Phosphoric Acid	10.00 per cent
Nitrogen (Ammonia Equivalent)	4.00 per cent
Potash Soluble in Water	4.00 per cent

Manufactured by
John Doe Fertilizer Co.
Columbia, S. C.

And a typical legend for the source tag to be attached to the sack:

WATER SOLUBLE AMMONIA
80% of the Total.
Derived From
Nitrate of Soda
Suphate of Ammonia
Cyanamid
Fish
Tankage
Blood
Cottonseed Meal

AVAILABLE WATER INSOLUBLE AMMONIA
20% of the Total.
Derived from
Fish
Tankage
Blood
Cottonseed Meal

POTASH
Derived From
Muriate of Potash
Manure Salts
Kainit
Sterilized Tobacco Stems

This fertilizer is non-acid-forming.

Using this typical bag form and typical source tag information, the farmer would know that he is obtaining an excellent grade of 10-4-4 cotton fertilizer with 80 per cent of the ammonia in water-soluble, quickly-available form, and also an abundance of available phosphoric acid and a normal supply of potash from muriate and organic sources.

We may remark, by way of comment on these highly detailed requirements of law, that, as this Court well knows, despite the inaccurate analogy suggested by the Court be-

low, (Opinion, R. 155), even Federal and State food and drug laws do not go nearly so far in their respective fields.

We now propose to test the sufficiency of the present South Carolina fertilizer law without the open formula amendment in the light of the facts disclosed in the evidence in this case. In so doing, we propose to show that there is no real difference of opinion between the witnesses for appellants and those for appellees *as to the nature of the information* the farmer needs, but merely a difference of opinion as to how that information can and should be conveyed to him.

We propose to show also that the provisions of the present law without the amendment, and, if any information beyond what that law provides for should be deemed desirable, other provisions of law which would not compel disclosure of manufacturers' formulas, which would not impose confiscatory expense upon manufacturers and which would not destroy the value of their existing stocks, could accomplish this purpose much more definitely, directly, and efficiently than the challenged amendment and not result in taking appellants' property without due process of law.

As to Phosphoric Acid:

Under the present South Carolina law without the amendment the phosphoric acid claimed must be guaranteed to be available—the only quality requirement considered necessary, because plants apparently make no distinction between available phosphoric acid derived from different materials. The evidence on both sides is in agreement on this point. (R. 43, 65, 99) Hence a statement of the poundage of materials furnishing phosphoric acid would be utterly useless.

As to Potash:

There is not a word of testimony in the record indicating that crops are affected differently by potash derived from different sources. As far as crops are concerned,

potash is potash. The real point with regard to potash-bearing materials, as shown by the testimony on both sides, is that they contain elements other than potash which affect crops. The defense testimony particularly made this point clear and discussed three such elements: chlorine, magnesium, and sulphur. (R. 98, 106, 107)

Under present South Carolina law without the amendment manufacturers must disclose whether the potash in mixed fertilizer is derived from muriate (chloride) of potash or from sulphate of potash. (1932 S. C. Code, Section 6366. Appendix) Such a disclosure is desirable, in order that the buyer may judge the chlorine content which, if excessive, is detrimental to certain crops, but the total lack of which may be equally harmful. (R. 100, 107) However, if further knowledge of the chlorine content is desirable, *a direct guarantee as to the chlorine content* of the mixed fertilizer would serve this purpose much better than would a statement of the number of pounds and the analysis of each potash-bearing material used, as is required by the open formula amendment. In fact, such a statement would, at best, permit the farmer to make an uncertain or inaccurate estimate of chlorine content instead of giving him direct information in simple, usable form as to such content. The difficulty would be increased and the results would be made more uncertain and unsatisfactory by the fact that the chlorine content of each potash-bearing material varies within rather wide limits. (R. 63)

The defense witness Hamilton testified that kainit, an important source of potash, is useful in the prevention of a certain type of rust because it also contains magnesium, and that consequently farmers should know the amount of kainit used in the manufacture of their fertilizer. (R. 98) By his reference to "Old German Kainit" and his further testimony on this point, he evidently recognizes the fact that there is a difference among different lots of kainit as to magnesium content. In fact, it is a matter of common knowledge in the fertilizer industry that the amount of

magnesium in some kainit is negligible, and also that the material designated as "Old German Kainit" has not been available in the American market for several years. It is obvious, therefore, that the publication of the number of pounds of kainit would not give the farmer the information regarding the magnesium content of his fertilizer which the witness Hamilton said he should have. In fact, such publication might actually mislead the farmer into believing that his fertilizer contained magnesium when such was not the case. And further, information as to magnesium content, if desirable and valuable to farmers, as the witness seems to argue, clearly can best be given to them by *a direct guarantee as to magnesium content*, thus by an open, customary, enforceable and approved method accomplishing this result without any necessity for depriving citizens of their property.

What we have said with reference to chlorine and magnesium applies equally to sulphur or any other element that might be contained in a potash-bearing material.

As to Nitrogen (Ammonia):

Both sides agree upon the fact (R. 43, 66, 102-104), which the Court below accepted and used as the basis of its entire comment on nitrogen (Findings of Fact V, R. 166-167. Opinion, R. 147) that the information concerning nitrogen which is important to the farmer is information as to the availability of the nitrogen for use by his crops, that is, the degree of availability and the rate or speed at which, or the time within which, the nitrogen becomes available for such use.

The South Carolina law without the amendment divides ammonia into classes of water-soluble and available water-insoluble, and requires a guarantee as to the amount of each class and a full disclosure of the name of each material furnishing each class in any mixed fertilizer offered for sale. (1932 S. C. Code, Section 6367. Appendix) This

classification is based on availability and is definite and informative. (R. 43-44. Opinion, R. 147. Findings of Fact V, R. 162. Findings of Fact IV, R. 166) All water-soluble forms of nitrogen are quickly available to crops (R. 43-44. Findings of Fact IV, R. 166), and no fertilizer or fertilizer material furnishing water-insoluble nitrogen can be sold, under the South Carolina law without the amendment, unless the availability of its nitrogen conforms to the standard set by the Board of Trustees of Clemson College (1932 S. C. Code, Section 6382. Appendix), the rate and degree of availability being thus insured. It is obvious therefore that the present classification is sufficient to enable the farmer to select fertilizer for his needs. It is significant that more than half the States do not require any classification of nitrogen whatever, being content with a statement of the nirogen guaranteed to be present.

And even if additional information as to the availability of nitrogen should be thought desirable, as has been thought in a few of the States such as Virginia and Florida, it can be given, as is being done in those States, without disclosing the poundage and analysis of materials used, but through subclassification of classes of nitrogen. Nitrate nitrogen represents the most immediately available or "quick acting" form, nitrate of soda being a conspicuous example. Generally, plants take up nitrogen in that form immediately. Next in rate of availability are the ammoniacal forms of nitrogen, which a few plants at certain stages of growth are able to utilize directly. Sulphate of ammonia is a well known example. Water-soluble organic nitrogen, as a rule, is of a slightly slower rate of availability. The next in rate of availability is the water-insoluble nitrogen. Cottonseed meal is a conspicuous example. (R. 43. Findings of Fact IV, R. 166)

There being no difference of opinion as to the fundamentals of this situation, any fertilizer legislation for the purpose indicated should provide for giving the needed information to the farmer in a form that is direct, simple,

understandable, and useful. In other words, the farmer should be advised as to the classes—and subclasses if desired—of nitrogen (which would disclose the availability) and the quantity thereof contained in his fertilizer, rather than the names of particular materials and the poundages thereof. Information given in the form of number of pounds and analysis of materials would necessitate elaborate calculations before the farmer would have information as to the availability of nitrogen contained in his fertilizer, even if all the nitrogen in any given material was always of the same class. As was disclosed by the evidence, the proportions of water-soluble nitrogen and available water-insoluble nitrogen in organic materials vary within wide limits and vary likewise within different lots of the same material. (R. 66-67) It is a matter of common knowledge among fertilizer chemists, for example, that animal tankage containing on the average 10 per cent of total nitrogen may have anywhere from 5 to 30 per cent of that nitrogen soluble in water.

An analogous situation exists with respect to the speedometer on an automobile. When the driver desires to know the speed at which he is traveling, it is only necessary for him to look at the dial of the speedometer. It is of no value to him in this connection to know that his propeller shaft is revolving at a certain speed, or that by a system of cogs and flexible cables of definite ratio this motion is transmitted from the shaft to an electric motor, or that this motor generates electricity proportional in amount to the speed at which it revolves, or that the electric current so generated moves in turn the needle on the face of the speedometer in a degree proportional to the speed of the propeller shaft. All he needs to know he can easily ascertain by a glance at the recording needle, and he can have its accuracy checked at any time. If he were an experienced engineer and knew the speed of the propeller shaft and the size of the wheels, he could, by an involved series of calculations, determine the speed, but this is entirely un-

necessary since nothing is achieved that may not be ascertained by a mere glance at the dial. So, developing the analogy, why should a farmer undertake to estimate the availability of the nitrogen in his fertilizer through an intricate set of calculations involving the poundage and analysis of each material used when he can obtain the information merely by reading a statement of the nitrogen classification which will definitely and certainly give him the desired information as to availability?

One of defendants' witnesses stated that the open formula amendment was necessary in order to prevent the use of unavailable ammoniates, such as "leather meal," in the manufacture of mixed fertilizer. (R. 119, 127) This contention is so entirely unfounded in fact that it is difficult to understand why it was injected into this case unless for the unwarranted purpose of trying to show bad faith on the part of fertilizer manufacturers. The present South Carolina law, without the amendment, forbids the use of any material furnishing ammonia that is below the standard of availability set by the Board of Trustees of Clemson College, thus placing that essential matter entirely within the control of the State enforcement agencies. (1932 S. C. Code, Section 6382. Appendix) The regulations of the Board issued pursuant to this authority require that the water-insoluble ammonia in any fertilizer shall be 80 per cent available, regardless of the percentage guaranteed, thus prohibiting the use, as such, of "leather meal" or any other rough ammoniate which does not come up to this standard of availability. The same provisions apply to the materials included in a compiled list read by the defense witness Hamilton (R. 104) from a bulletin written by him, and make the data therein quoted of no significance in this connection. Of course, when "leather meal" or any other ammoniate has been processed so as to bring its availability up to the standard set by the Clemson Trustees, there is no reason why it should not be used as a source of nitrogen. Similarly, the witness Geraty advanced a fantastic idea

about the supposed presence of poisonous compounds in sewage tankage and their destructive effect on bacteria in the soil. (R. 129) These remarks are merely the offspring of a too vivid imagination of an admittedly unlettered layman. The witness Hazen, a graduate biochemist of 27 years' experience, completely refuted this contention by pointing out that in the process of manufacture actually used any such poisonous compounds would be completely removed. (R. 61-62) And even if this were not the case, users of fertilizer would have complete protection, not only as to sewage tankage but as to "leather meal" or any other material—as recognized by the witness Geraty on cross-examination (R. 131)—through the provisions of the South Carolina law governing the use of deleterious substances in fertilizer (1932 S. C. Code, Section 6366. Appendix) and regulations issued thereunder.

The Court discussed briefly the use of cyanamide as a nitrogen carrier and indicated that any misapprehension as to its effects has now been removed. (Findings of Fact III, R. 166) This is in line with testimony given by witnesses for both sides, who agreed that cyanamide, when properly used in the manufacture of mixed fertilizer—and that it is now so used by fertilizer manufacturers—is an excellent source of nitrogen. It is only when used excessively *as a raw material* that it may be harmful to growing crops. (R. 63, 112-113)

As to Minor Plant Foods:

If the construction of the open formula amendment suggested by one of defendants' witnesses is correct, and analysis showing only the content of the major plant foods is required (R. 109), then enforcement would not give the farmer any accurate information with respect to the kind or amount of the minor plant foods contained in his mixed fertilizer. Witness Hamilton, while insisting that "analysis" as generally used in the fertilizer industry relates

only to phosphoric acid, ammonia, and potash, nevertheless contended that information as to the quantities of magnesium (R. 98), manganese (R. 98-99), chlorine (R. 100, 107), sulphur (R. 99), and calcium (R. 93, 102) was desirable for the farmer, citing specific cases where the presence or absence of one or more of them determined the success or failure of certain crops. If "analysis" in the amendment means the disclosure only of the major plant food element, how can the farmer get the desired information regarding these other elements? The witness contends that the farmer should have information concerning, for example, magnesuim. The challenged amendment, with the support of defendants, proposes to supply that information through a statement that a mixed fertilizer contains a certain number of pounds of kainit—primarily a potash carrier. If the legislature desires to require disclosure of magnesium content, the information may be satisfactorily supplied *by making a magnesium guarantee* for the whole fertilizer mixture, but not by the indirect, insufficient, unsatisfactory, and perhaps misleading method of disclosing the number of pounds and analyses of ingredients present in a potash carrier. And the same principle applies with reference to any of the other minor plant food elements.

(C) Under the Present South Carolina Law, Without the Amendment, Any Farmer Can Readily Have Fertilizer Mixed For Him in Exact Accordance With His Own Specific Formula and Thereby Obtain a Fertilizer as to Which he Knows the Number of Pounds and the Analysis of Each Material Used.

The present South Carolina fertilizer law without the amendment expressly recognizes the right of a farmer to contract with a manufacturer to mix fertilizer in exact accord with a specific formula. The penalty provided for the manufacturer's failure to manufacture according to the contracted formula is common law damages for breach of contract plus one-fourth of the selling price of the fertilizer.

(1932 S. C. Code, Section 6367. Appendix) Mr. Hamilton, who said he sometimes thought he knew by name every farmer in South Carolina (R. 91), in his testimony admitted that even without the open formula amendment it is easily possible for any farmer in South Carolina to get fertilizer mixed on his own formula. (R. 118) Stated differently, this means that any farmer in South Carolina can readily obtain a fertilizer as to which he knows the number of pounds and the analysis of each material used. It is not claimed that the open formula amendment could do more for him. Where, then, is the necessity for the amendment? There is none. And, of course, even with the open formula amendment, manufacturers could not make up all possible combinations of materials to meet the individual whims of buyers, but only those combinations which would be in more or less general use—as they do now. Consequently, a farmer, in order to buy fertilizer manufactured according to his own individual ideas, would still have to fall back, in most cases, on the law as it stands without the amendment.

At the hearing a member of the lower Court suggested that, notwithstanding the present admitted ability of farmers easily to get the exact ferilizers they want, the legislature had the right to take into account the fact that a large proportion of fertilizer sold in South Carolina is sold by standard brands and grades, the specified formula contract provisions of the present law not being fully utilized, and consequently the legislature could enact laws for the benefit of that large group who fail to take advantage of the contract provisions of existing law.

Even if the general principle involved in this suggestion were sound, it would not be applicable to this case. Here there are no health or other hazards to be protected against, no grave public danger or imposition to be safeguarded or avoided. In *Mugler* v. *Kansas*, 123 U. S. 623, this Court thus draws the distinction between property which is offensive in itself and property which is not:

> "The exercise of the police power by the destruction of property which is itself a public nuisance, or the prohibition of its use in a particular way, whereby its value becomes depreciated, is very different from taking property for public use, or from depriving a person of property without due process of law. In the one case, a nuisance is abated; in the other, unoffending property is taken away from an innocent owner."

There is no evidence or indirect implication in the record or any statement in the amendment to the effect that fertilizers are unwholesome, adulterated, misbranded, or detrimental in any way to the health, morals, or safety of the public. The amendment is not based on any such theory, but at most a doubtful benefit is attempted to be granted. If a large majority of farmers do not know enough about agronomy to *prescribe* their own formulas, how would those farmers, under the challenged amendment, be any better able to *select* the proper formulas for their particular soils and crops? The well-informed farmers can now get all the claimed benefits of the open formula amendment; those not so well informed would be no better off under the amendment. They must, with or without the amendment, trust to the competence and integrity of their agricultural advisers and fertilizer manufacturers and to the enforcement of control laws.

But, further, the principle suggested by the Court below is so evidently unfair and unreasonable as to refute itself. Would the Court justify taking away property of one person merely to confer a benefit or a privilege upon another, when that other person could easily enjoy such benefit or privilege through the exercise of an existing right? Surely in this situation courts would not lend their approval to the destruction of property.

> "The constitutional guaranties may not be made to yield to mere convenience." *Weaver* v. *Palmer Bros.*, 270 U. S. 402.

In general: What we have said demonstrates that there is no necessity for the challenged amendment, the purposes claimed to be served by it being accomplished by the previous law or being capable of more detailed accomplishment, if desired, by legislation which will not deprive appellants of their property; and that in fact the amendment would not accomplish the purpose for which it is claimed to be intended.

In the case of *Weaver* v. *Palmer Bros., supra,* a statute of Pennsylvania forbade the use of any material known as shoddy in the making of any mattress, pillow, bolster, feather bed, etc. It was conceded that shoddy could be rendered perfectly harmless by sterilization. This Court held that the absolute prohibition of the use of shoddy after it had been rendered harmless was unreasonable and arbitrary. Applying the reasoning of that case to the case at bar the open formula amendment forbids the sale of fertilizer not made and branded in the particular manner prescribed therein. As has been clearly shown herein, whatever good, if any, can be accomplished by the amendment can likewise be accomplished by legislation based on specific guarantees and classification of plant food content, such as the Virginia fertilizer act, which will not destroy property nor increase cost of manufacture. If an objective can be attained in two ways, one of which involves the destruction of private property and the other of which does not, manifestly the courts will not sustain the former.

A State may not, under the guise of protecting the public, arbitrarily interfere with private business or impose unreasonable or unnecessary restrictions thereon. The case of *Jay Burns Baking Co.* v. *Bryan,* 264 U. S. 504, is in point and is indistinguishable in principle from the instant case. The Burns case was decided by this Court on April 14, 1924.

The act in question was one of the State of Nebraska providing that every loaf of bread made for the purpose of

sale, or offered for sale, or sold, shall be ½ pound, 1 pound, 1½ pounds, or exact multiples of 1 pound. It prohibited loaves of other weights, a tolerance in excess of the standard weights at the rate of 2 ounces per pound and no more being allowed, and required that the specific weight should be the average weight of not less than twenty-five loaves, and that such average should not be more than the maximum nor less than the minimum prescribed.

The plaintiff Baking Company did not claim that it was impossible to make loaves which, for at least twenty-four hours after baking, would weigh not less than the specified minimum weights, but it insisted that the difference permitted by the act between the weight of loaves when taken from the oven and their weight twenty-four hours later was too small, and that it was impossible for bakers to carry on their business without sometimes exceeding the maximum or falling short of the minimum average weights. It was also shown that by wrapping the loaves of bread the prohibited variations in weight could be avoided; and that certain artificial means to prevent or retard evaporation could be used. It was also shown that the law might be complied with by using somewhat inferior grades of flour.

This Court said:

> "Admittedly, the provision in question is concerned with weights only. The act does not regulate moisture content, or require evaporation to be retarded by the wrapping of loaves or otherwise. The uncontradicted evidence shows that there is a strong demand by consumers for unwrapped bread. It is a wholesome article of food, and plaintiffs in error and other bakers have a right to furnish it to their customers. The lessening of weight of bread by evaporation during twenty-four hours after baking does not reduce its food value. It would be unreasonable to prevent unwrapped bread being furnished to those who want it in order technically to comply with a weight regulation and to keep within limits of tolerance so narrow as to require that ordinary evaporation be retarded by wrapping or other artificial means. It having been

shown that during some periods in Nebraska bread made in a proper and usual way will vary in weight more than at the rate of 2 ounces to the pound during twenty-four hours after baking, the enforcement of the provision necessarily will have the effect of prohibiting the sale of unwrapped loaves when evaporation exceeds the tolerance.

"No question is presented as to the power of the state to make regulations safeguarding or affecting the qualities of bread. Concretely, the sole purpose of fixing the maximum weights, as held by the supreme court, is to prevent the sale of a loaf weighing anything over 9 ounces for a 1-pound loaf, and the sale of a loaf weighing anything over 18 ounces for a pound-and-a-half loaf, and so on. The permitted tolerance, as to the half-pound loaf, gives the baker the benefit of only 1 ounce out of the spread of 8 ounces, and as to the pound loaf, the benefit of only 2 ounces out of a like spread. There is no evidence in support of the thought that purchasers have been or are likely to be induced to take a 9½ or a 10-ounce loaf for a pound (16-ounce) loaf, or an 18½ or a 19-ounce loaf for a pound-and-a-half (24 ounce) loaf; and it is contrary to common experience and unreasonable to assume that there could be any danger of such deception. *Imposition through short weights readily could have been dealt with in a direct and effective way. For the reasons stated, we conclude that the provision that the average weights shall not exceed the maximums fixed is not necessary for the protection of purchasers against imposition and fraud by short weights, and is not calculated to effectuate that purpose, and that it subjects bakers and sellers of bread to restrictions which are essentially unreasonable and arbitrary, and is therefore repugnant to the 14th Amendment.*" (Italics added)

The legislature of Nebraska, apparently in order to meet the objections of the Court in the Burns case, passed another act relating to the weights of loaves of bread. This act came before the United States Supreme Court in the case of *Petersen Baking Co., et al.* v. *Bryan*, 290 U. S. 570, which was decided on January 8, 1934.

The second act remedied the faults of the first and provided a tolerance of three ounces to the pound, to be maintained for twelve hours after cooling, instead of, as in the Burns case, a tolerance of two ounces to the pound, to be maintained for twenty-four hours. The second act was held to be constitutional.

The Burns case has been cited with approval in eighteen or more cases by the United States Supreme Court and other Federal Courts. One of the cases in which it is cited is that of *Liggett Co.* v. *Baldridge*, 278 U. S. 104. The act of Pennsylvania in question provided that every pharmacy or drug store should be owned only by a licensed pharmacist, and, in the case of corporations, associations and copartnerships, required that all the partners or members thereof should be licensed pharmacists. Existing pharmacies and drug stores were exempted from the provisions of the act.

The Court held that the appellant's business was a property right, and as such entitled to protection from State legislation that was in contravention of the Federal Constitution. The act in question was sought to be sustained upon the ground that it was reasonably calculated to promote the public health, and the Court said:

> "The determination we are called upon to make is whether the act has a real and substantial relation to that end or is a clear and arbitrary invasion of appellant's property rights guaranteed by the Constitution."

The Court held also that a State undoubtedly could regulate the compounding of prescriptions and the sale of medicines, and pointed out various statutes of Pennsylvania in force before the enactment of the statute under review. Some of those statutes provided that no one but a licensed physician could practice medicine or prescribe remedies; that no one but a registered pharmacist could have charge of a drug store; that every drug store must be registered, registration being allowed only where a regis-

tered pharmacist was in charge. Stringent provision was made to prevent the ownership or sale of any impure drug or any below the standard as determined by the recognized United States Pharmacopoeia. Another provision was that none but a registered pharmacist could compound physicians' prescriptions. The supervision of these matters and the enforcement of the laws in respect thereof were in the hands of the State Board of Pharmacy, which was given broad powers.

The Court, after referring to these various laws for the protection of the public health, stated that:

> "*It would seem, every point at which the public health is likely to be injuriously affected by the act of the owner in buying, compounding, or selling drugs and medicines is amply safeguarded.* (Italics added)
>
> "The act under review does not deal with any of the things covered by the prior statutes above enumerated. It deals in terms only with ownership. It plainly forbids the exercise of an ordinary property right and, on its face, denies what the Constitution guarantees. A State cannot, 'under the guise of protecting the public, arbitrarily interfere with private business or prohibit lawful occupations or impose unreasonable and unnecessary restrictions upon them.'"

It seems to us that the decisions referred to are in principle on all fours with the case at bar. It has been shown here that there is no purpose which the challenged act as an exercise of the police power may be reasonably held to accomplish. On the one hand it will serve only to satisfy idle curiosity, while on the other hand it imposes intolerable, if not impossible, burdens upon fertilizer manufacturers. This fact alone is conclusive that the act in question is arbitrary, unreasonable, and unnecessary, and, therefore, an unconstitutional exercise of the police power.

V. The Amendment is Unenforceable.

The amendment is unenforceable because there are no known methods, chemical or other, which can be used to

determine accurately the amounts and analyses of the materials that were used in the manufacture of a complete fertilizer. Microscopic analysis may determine the presence or absence of certain materials in a mixture but will not and cannot determine accurately the amount of such materials in the mixture. No known method will determine accurately the quantitative composition in terms of materials used in fertilizer mixtures.

However, accepted methods of chemical analysis enable a capable chemist to determine the different classes of nitrogen contained in any substance whether it be a mixed fertilizer or a fertilizer material. Among the classes of nitrogen in mixed fertilizers determinable by chemical analysis are:

1. Nitrate nitrogen
2. Ammoniacal nitrogen
3. Water-soluble organic nitrogen
4. Water-insoluble organic nitrogen
5. Total nitrogen present in all forms.

These chemical methods differentiate only between the different classes of nitrogen and do not and cannot indicate the materials from which the nitrogen is derived. In addition to the above, empirical methods have been developed which measure the availability of the water-insoluble organic nitrogen in terms of crop plant utilization. (R. 48, 55, 69, 78)

The Clemson College representatives on the Committee appointed by the Governor to study the fertilizer situation and report to the legislature recommended that guarantees be made on the classes of nitrogen rather than on the poundage of materials, as they felt this was the only information that would be of any benefit to the farmer and also the only guarantee they could check to determine whether the manufacturer had met his guarantee. (R. 71-72)

There were introduced in evidence some 13 samples of fertilizer materials with the statement that the exhibit was

incomplete. For the convenience of the Court we give below a list of fertilizer materials that are commonly used in the manufacture of mixed fertilizers in South Carolina:

I. Materials Supplying Nitrogen Only

Chemicals
- Nitrate of Soda (Chilean)
- Nitrate of Soda (synthetic)
- Sulphate of Ammonia
- Cyanamide
- Anhydrous Ammonia
- Aqua Ammonia
- Calcium Nitrate
- Urea
- Calurea
- Urea-ammonia
- Nitrate of Ammonia
- Calnitro

Natural Organics (Supplying mainly nitrogen)
- Cottonseed Meal
- Animal Tankage
- Garbage Tankage
- Dried Blood
- Fish Meal
- Activated Sludge
- Guano
- Castor Pomace
- Processed Tankages
- Sheep Manure (dried and ground)
- Vegetable Meals (soy bean, peanut, etc.)

II. Materials Supplying Nitrogen and Phosphoric Acid

- Ammophos A
- Ammophos B
- Ammoniated Phosphate
- Monoammonium Phosphate
- Diammonium Phosphate
- Bone Meal
- Ammoniated Superphosphate

III. Materials Supplying Available Phosphoric Acid Only

Superphosphate—16%
Superphosphate—18%
Superphosphate—20%
Superphosphate—32%
Triple Superphosphate

IV. Materials Supplying Potash Only

Muriate of Potash—50%
Muriate of Potash—60%
Sulphate of Potash
Manure Salts
Kainit
Sulphate of Potash-Magnesia

V. Materials Supplying Nitrogen and Potash

Nitrate of Potash
Potassium Ammonium Nitrate
Tobacco Stems

VI. List of Materials Furnishing So-Called Minor Plant Foods

Magnesium
Dolomite
Magnesium Sulphate (anhydrous)
Epsom Salts
Kieserite

Calcium
Gypsum
Limestone
Hydrated Lime
Burned Lime
Oyster Shells
Marl

Manganese
Manganese Sulphate

Zinc
Zinc Sulphate

Boron
Sodium Borate
Calcium Borate

Sulphur
Gypsum
Brimstone

Copper
Copper Sulphate

Many of the above materials vary widely in analysis. For instance, cottonseed meal may contain anywhere from 6 to 9 per cent ammonia and tankage from 8 to 12 per cent ammonia, and their other components also vary proportionately. (R. 68)

The list is not a complete one since many other materials are used in varying quantities as they come on the market, but these are standard materials and, while all are never used in any one mixture, it is not at all uncommon for ten or twelve to be used in a single mixture.

Take for example the source tag introduced in evidence as plaintiffs' Exhibit P3, Item 3. In the particular mixture involved this tag lists 7 materials which furnish the water-soluble nitrogen, 4 materials which furnish the available water-insoluble nitrogen, and 4 materials which furnish potash, all as required by the present South Carolina law without the amendment. In this particular mixture, in addition to the one or more principal materials furnishing phosphoric acid, some phosphoric acid was furnished by at least two of the nitrogen carriers listed on the tag, but a statement of the phosphoric acid carriers is not required to be on the source tag, though a statement of the percentage of available phosphoric acid is required to be upon the sack. This is not a hypothetical mixture but one actually in practical use in South Carolina. Here are at least 12 materials used in formulating this particular mixture and under the open formula amendment the number of pounds per one hundred pounds and analysis of each of these materials must be stated on the tag.

In addition to standard materials manufacturers of fertilizer in South Carolina have been purchasing large quan-

tities of proprietary fish base goods for use in their fertilizer mixture. Much of this material is manufactured outside South Carolina. It is an excellent material. Many of the manufacturers of these base goods would be unwilling to divulge the materials from which they are manufactured as they have valuable property rights in their formulas upon which they are manufactured and can dispose of their product in other States. Thus the open formula amendment would deprive farmers of South Carolina of a very excellent and economical source of nitrogen and phosphoric acid in their fertilizers. The tonnage involved is probably sufficient to enhance the price of materials used in its place.

It has been suggested that compliance could be checked and enforcement assured if a sufficient number of State inspectors were placed in each factory. The placing of South Carolina inspectors in factories located in Georgia, North Carolina, Tennessee, and other States, from which fertilizer is shipped to South Carolina, raises questions too obvious to require discussion. The manual labor necessary to carry on the operations in a fertilizer factory already described can be readily visualized. To be sure of compliance, inspectors would have to see, for example, that each man engaged in bringing materials to the machine was bringing each time the proper amount of each particular material specified by the formula. Furthermore, it would be necessary for an inspector to sample each material and analyze it or have it analyzed, to ascertain that its analysis was as stated by the manufacturer, and it would be necessary later to see that this same analysis was used some months later on the tag that was attached to the bag when shipped. Each unit of the mixed fertilizer would have to be followed from the mixing machine to the storage pile by an inspector and months later would have to be followed back to the bagging machine to know that the materials originally mixed together for curing as prescribed by the particular formula were actually in the bag as shipped and stated on the tag attached thereto. Enforcement by such

procedure might be possible, but the number of inspectors necessary for such enforcement would be legion and would involve great expense without any resulting benefit.

It has also been suggested that the amendment could be enforced by requiring manufacturers to keep for the year detailed records of all incoming materials and outgoing shipments, such records to be verified and balanced out by enforcement officers. Such records are now kept by all fertilizer companies. Obviously this proposed audit could only balance out the manufacturer's total business for the period so checked. Such verification and checking would give information that certain amounts of certain materials had been received by the factory in question and that corresponding amounts had been shipped from the factory or were in stock. No information would be revealed showing how much or whether any of such materials had been shipped in any one particular sack. Some particular material might have had its incoming tonnage distributed into the entire tonnage of outgoing shipments. Another material might have all been included in a single outgoing shipment. It is evident that this procedure would be of no assistance in determining whether the information as given on the tax attached to any individual sack was correct.

Obviously, a statute which cannot be enforced cannot accomplish the purpose for which it was intended, and so cannot be valid as an exercise of the police power.

CONCLUSION.

We have attempted to present to the Court in a logical way an accurate picture of this case based on the evidence. We have shown the methods of manufacture and operation followed in the industry and its physical and chemical bases and have pointed out as clearly as we could the irreparable damage that would be caused to the industry if the challenged amendment were enforced.

At the hearings we presented witnesses of high intelligence, technical education, special training and years of ex-

perience in the industry. As chemistry is the essence of the industry and of this case, we presented, among our witnesses, five trained and experienced chemists. In contrast, although there are many competent chemists on the staff of Clemson College, the defense did not choose to permit any of them to appear on the stand in this case. In fact the testimony shows that the Clemson representatives on the committee appointed by the Governor to consider fertilizer legislation recommended a type of legislation different from the open formula amendment, as they felt the latter would not be of any benefit to the farmer and could not be enforced. (R. 71-72)

We have not attempted to discuss in detail all the testimony of appellants or of the defendants. To discuss all the inaccurate and often contradictory statements in defendants' testimony and in the affidavits introduced by them would extend this brief far beyond reasonable bounds. The inaccuracy of many of these statements and their inconsistency with facts as established by uncontradicted evidence is self-evident. We shall advert, by way of illustration, to just two such statements:

J. Strom Thurmond (R. 32-33), in an effort to justify the amendment, states in his affidavit:

> "Suppose a farmer should buy a ton of 7-5-5 fertilizer, which means the fertilizer contains 5 per cent ammonia and the sources of the ammonia on the tag were listed as nitrate of soda, sulphate of ammonia and leather meal, the fertilizer company could place a teaspoonful of soda, a teaspoonful of sulphate of ammonia and derive all of the balance of the ammonia from leather meal (meal made from shoe leather), which is unavailable, and certainly a farmer would not buy such a fertilizer if he were informed of the facts about the matter."

As we have already pointed out in this brief the facts are that the South Carolina fertilizer law (1932 S. C. Code, Section 6382. Appendix) without the amendment prohibits

the use of any material furnishing ammonia whose availability does not meet the requirements of the Board of Trustees of Clemson College. These requirements as set forth in a regulation issued by the Board are that no material may be used the availability of whose ammonia is not 80 per cent of the total found. Leather meal, not having such availability would be prohibited from use. Furthermore, the present law without the amendment requires that the ammonia be divided into two classes, water-soluble ammonia and available water-insoluble, that the amount of each class be stated and that the names of the materials which furnish each class be given. (1932 S. C. Code, Section 6367. Appendix) Nitrate of soda and sulphate of ammonia are soluble in water (R. 66) and consequently would be given as the materials which furnished the water-soluble ammonia in the mixture cited by affiant Thurmond. If upon analysis of the mixture the amount of water-soluble ammonia guaranteed was not found to be present (and such amount would certainly not be found if only a teaspoonful each of nitrate of soda and sulphate of ammonia were used in the mixture) then there would be a violation of the law. If the amount of available water-insoluble ammonia guaranteed to be present were not found upon analysis to be present (and if leather meal "unavailable" were used as the material, it would not be found) again there would be a violation of the law. In all or any such violations the proof is easily within the realm of chemical analysis and the penalties for violation severe and definite. The buyer even in such a ridiculous situation as described by affiant Thurmond has complete and definite protection under the present law without the amendment.

Again, C. O. McDonald in his affidavit (R. 34-35) states:

> "Crops and soils have been endangered by application and use of fertilizer which met the requirements of the old law as to chemical analysis but which, nevertheless, did not have the proper proportions of the various substances entering into the elements of the fer-

tilizer. A number of suits have been brought in the Courts of this county, in which the question of damage to crops and soils caused by the use of fertilizer which the farmer used through ignorance of the substances in the fertilizer elements were involved."

However, it is to be noted that the affiant very carefully refrained from saying that any such crops or soils have been damaged or that any such suits have been successful. We need not take the Court's time further than to say that similar errors, misstatements, and erroneous conclusions occur in practically every one of defendants' affidavits.

Some of defendants' witnesses expressly or impliedly claimed that the farmers of South Carolina want the open formula amendment. This claim is subject, of course, to the usual "grain of salt" with which all such claims must be taken. In this connection we respectfully direct this Court's attention to the affidavits of representative farmers (R. 132-137) to the effect that the present South Carolina law without the amendment gives them sufficient information to enable them to purchase fertilizer intelligently for their needs and that the amendment would be of no benefit to them.

We believe we have established conclusively that, for the reasons given, the South Carolina open formula amendment is unconstitutional, and it is respectfully submitted that the decree of the lower Court should be reversed and the amendment declared invalid.

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APPENDIX.

Statutes of South Carolina Regulating the Sale of Commercial Fertilizers.

(1932 Code, as amended)

(Open formula amendment: Sec. 6367 (b))

"**Sec. 6363. Fertilizer to Be Analyzed.**—The board of trustees of Clemson Agricultural College, to prevent the practice of fraud and imposition in the manufacture and sale of cotton seed meal, fertilizers and fertilizing material containing nitrogen, potash or phosphoric acid, sold or offered or exposed for sale, whether manufactured or mined within or without the State, shall cause the same to be analyzed and inspected.

"**Sec. 6364. Clemson College to Analyze Fertilizers without Requiring Name of Manufacturer.**—It shall be the duty of Clemson Agricultural and Mechanical College to analyze samples of commercial fertilizers, manure or cotton seed meal furnished by a citizen of this State, as now required by law, without requiring the purchaser of said fertilizers to give the name of the manufacturers or the manufacturers' analysis. The person sending such sample shall furnish the said college with the name of the manufacturer of such fertilizer and the ingredients thereof immediately after the receipt of the analysis of such fertilizer: *Provided, however*, That it shall be the duty of any citizen sending samples to Clemson College for analysis to give to the college the names of the fertilizer ingredients represented to be in said fertilizer.

"**Sec. 6365. Copy of Label Filed with Clemson College—Contents of Certificates—Sale of Unregistered Fertilizer.**—Every person or corporation engaged in the manufacture and sale of fertilizers or commercial manures or cotton seed meal in this State, before selling or offering for sale, shall file with the board of trustees of Clemson Agricultural College of South Carolina true and correct copy of the printed label, or stamp, required by a subsequent section, to be printed on each and every bag, barrel or package of fertilizer, or fertilizing material, of the various brands, which the said person or corporation proposes to offer for sale within the State until the first of November next following; also, a

certificate showing the source from which the phosphoric acid, ammonia and potash guaranteed in each of the said brands of fertilizers or commercial manures so offered for sale is derived. And, in addition stating that any filler used in said brands of fertilizer is harmless, and if soil has been used, that the same was not taken nearer than twelve (12) inches from the surface of the ground. It shall be unlawful for any manufacturer, mixer, or other person, either by themselves or through their agents, to sell or offer for sale in this State any fertilizer or fertilizing materials which have not been registered with the said board of trustees, as required by this article. The fact that the purchaser waives any of the provisions of this article shall be no protection to said party selling or offering the same for sale.

"**Sec. 6366. Contents of Labels.**—Every person or corporation, before selling or offering for sale in this State any commercial fertilizer or fertilizing material shall brand on each bag or package the brand name of the fertilizer, the weight of the package, the name and address of the manufacturer, and the minimum percentage only guaranteed to be present of available phosphoric acid, of nitrogen (ammonia equivalent), and of potash soluble in water. The items shall be printed on the package in the following order:

Weight of each package.
Brand name or trade-mark.
Guaranteed analysis:
Available phosphoric acid.....per cent.
Ammonia equivalent of nitrogen.....per cent.
Potash soluble in water.....per cent.
Name and address of the manufacturer.

In addition to the above there must be printed on the package, or on a tag attached thereto, the per cent. of water soluble nitrogen (ammonia equivalent), guaranteed, within such limits as the said board of trustees, or a committee therof, may prescribe. And, in addition, further, it must be stated whether the potash is derived from muriate or sulphate. And, in addition, further, the per cent. of borax or other substance, or substances, injurious to plants must be stated, if in excess of limits prescribed by the board of trustees, or a committee thereof: *Provided,* The said board of trustees, or a committee thereof, shall have power to direct in what manner the branding and labeling shall be done.

"Sec. 6367. Classification of Materials—Labeling—Substitution—Special Contracts—Damages and Penalty.—(a) That the materials used in the manufacture and mixing of all fertilizers supplying nitrogen or ammonia, and offered for sale in this State, shall be divided into two classes, namely, water-soluble and available water-insoluble; and the percentage of nitrogen or ammonia coming from either of these two classes shall be guaranteed, but allowing a variability of 1-4 of one per cent. for goods containing two per cent. of ammonia or under, and a variability of one-third of one per cent. for goods containing two and three per cent. ammonia, and a variability of one-half of one per cent. for goods containing over three per cent. ammonia, and the several materials in each of these two classes shall be named on the bag or on a tag attached thereto, and it shall be permissible for the manufacturer to substitute one or more materials in either class of approximately equal agricultural value for other materials of the same class: *Provided:* That where there is a contract of agreement between a manufacturer and a purchaser of fertilizer that the fertilizer will be manufactured by the use of certain definite sources and amounts of ammonia and potash, the fertilizer must be manufactured from these materials without substitution of other materials and failure on the part of the manufacturer to comply with this requirement shall render the manufacturer liable to the purchaser for damages as it is now prescribed by law, and in addition thereto the manufacturer shall pay to the purchaser a penalty equal to one-fourth of the purchase price of such fertilizer.

(*b*) *That the amount and analysis of each material, or source, of each plant food element used in manufacture, of a fertilizer mixture containing two or more plant food elements be stated on a tag attached to each sack or container, such amounts of materials to be stated in pounds per hundred pounds of mixture contained in the sack or other container. This statement of pounds of materials used in the manufacture, of a fertilizer mixture shall be in addition to the statement of chemical analysis as required by Section No. 6366 of the Code of Laws of South Carolina, 1932.* (Italics added)

"Sec. 6368. Specifications for Kinds of Fertilizer to Be Marked "High Grade," "Standard," "Low Grade."—The words "High Grade" shall not appear upon any package

of any complete fertilizer which contains, by its guaranteed analysis, less than ten per cent. of available phosphoric acid, one and sixty-five one-hundredths of nitrogen (equivalent to two per cent. of ammonia), and two per cent. of potash, or a grade of analysis of equal total commercial value; the word "Standard" shall not appear upon any package of any complete fertilizer which contains, by its guaranteed analysis, less than eight per cent. available phosphoric acid, one and sixty-five one-hundredths of nitrogen (equivalent to two per cent. of ammonia), and two per cent. of potash, or a grade of analysis of equal commercial value; the words "High Grade" shall not appear upon any package of any acid phosphate with potash, which shall contain, by its guaranteed analysis, less than thirteen per cent. of available phosphoric acid and one per cent. potash, or a grade of analysis of equal total commercial value; the word "Standard" shall not appear upon any package of any acid phosphate with potash which contains, by its guaranteed analysis, less than eleven per cent. of available phosphoric acid and one per cent. potash, or a grade of analysis of equal total commercial value; the words "High Grade" shall not appear upon any package of any plain phosphate which shall contain, by its guaranteed analysis, less than fourteen per cent. of available phosphoric acid; the word "Standard" shall not appear upon any package of plain acid phosphate which shall contain, by its guaranteed analysis, less than twelve per cent. of available phosphoric acid. If the words "High Grade" or "Standard" or "Low Grade" are printed on packages, they shall appear as to classification and in such manner as the board of trustees, or a committee thereof, may prescribe.

"Sec. 6369. Marking of Grades of Cotton Seed Meal.—Ammonia from Other Source Forbidden.—All cotton seed meal manufactured and offered for sale as fertilizer in this State shall be known and branded as "High Grade," "Standard," or "Low Grade." "High Grade" meal must contain not less than six and fifty-eight one-hundredths per cent. of nitrogen, equivalent to eight per cent. of ammonia; "Standard" meal must contain not less than five and seventy-six one-hundredths per cent. of nitrogen, equivalent to seven per cent. of ammonia, and any cotton seed meal containing less than five and seventy-six per cent. of nitrogen, equivalent to seven per cent. of ammonia, shall be

known and branded as "Low Grade": *Provided*, That all meal manufactured from Sea Island cotton seed shall be branded "Sea Island Cotton Seed Meal," and the guaranteed analysis shall not be less than three and seven-tenths per cent. of nitrogen, equivalent to four and one-half per cent. of ammonia, and the same shall be printed on the package. In all cases where cotton seed meal is sold purely as cotton seed meal there shall be no other source of ammonia than that derived from the cotton seed, and in the event that any other kind of ammonia is put into said cotton seed meal sold purely as cotton seed meal, the person, firm, or corporation or manufacturer offering same for sale, or selling same, shall be liable to a penalty of one dollar per bag of every lot of cotton seed meal so sold or offered for sale.

"**Sec. 6370. Inspection Tax.**—For the purpose of defraying the expenses connected with the inspection of commercial fertilizers sold, or exposed or offered for sale in this State, and experiments relative to the value thereof, all companies, corporations or persons engaged in the manufacture or sale of commercial fertilizers shall pay to the State Treasurer an inspection tax of twenty-five cents per ton (2,000 pounds) for such commercial fertilizer sold, or exposed, or offered for sale in this State, in order to entitle the same to inspection and delivery, and shall attach to each package a tag, furnished by the said board of trustees, or a committee thereof, as evidence that said tax has been paid. Nothing contained in this section shall interfere with fertilizers passing through the State in transit, nor restrict or avoid sales of acid phosphate, cotton seed meal or other fertilizing materials to each other by importers, manufacturers or manipulators who mix fertilizers for sale and have registered their brands, as required by the provisions of this article.

"**Sec. 6371. Tags to Be Cancelled.**—All persons, companies or corporations engaged in the manufacture or sale of fertilizers or commercial manures or cotton seed meal shall cancel all tags or stamps used, as evidence that said inspection tax has been paid, by stamping such tags or stamps with the name of the person or persons, company or corporation selling, shipping or manufacturing, also the date of shipment or delivery. No railroad or common carrier shall receive for shipment or delivery from any person or

persons, company or corporation any fertilizers or commercial manures or cotton seed meal with the tag or stamps bearing date of cancellation thirty or more days prior to delivery for shipment.

"**Sec. 6372. 'Commercial Fertilizers' Defined.**—For the purpose of this article a commercial fertilizer is hereby defined as any material, substance or mixture which contains, or is claimed to contain, more than one per cent. of total phosphoric acid, or of potash, or of nitrogen: *Provided*, That the following substances, lime, limestone, marl, unground bones, stockpen manure, barnyard manure, or the excrement of any domestic animal shall be exempt from the provisions of this article, in a case that said manure or excrement has not been dried or manipulated or otherwise treated, or is not claimed to have a value of more than four dollars a ton.

"**Sec. 6373. Analysis.**—The board of trustees of the Clemson Agricultural College of South Carolina shall cause one or more analyses to be made annually of such commercial fertilizers sold, or offered for sale, under the provisions of this article, as may be sampled under their direction, and in accordance with such regulations as they may adopt. For this purpose the said board of trustees, or a committee thereof, shall appoint or cause to be appointed a sufficient number of inspectors, who shall secure for the board samples of said commercial fertilizers, and shall cause said samples to be forwarded to the Clemson Agricultural College, there to be analyzed in accordance with the methods of the Association of Official Agricultural Chemists, and otherwise experimented with, and who shall perform such other duties as the said board may direct. And the said board of trustees shall also employ a chief chemist, with such assistants skilled in agricultural chemistry as may be necessary, whose duty it shall be to analyze said fertilizers and other materials as may be required by said board, and who shall make regular reports to the board of the results of all the analyses of officially drawn samples of fertilizers and fertilizing materials, which shall be published in bulletins, and shall be ready for distribution as directed by the said board.

"**Sec. 6374. Certificate of Chief Chemist as Evidence.**—In the trial of any suit or action, wherein is called in question the value or composition of any fertilizer, a certificate,

signed by the chief chemist, setting forth the analysis made by the chief chemist, or under his direction, of the sample of said fertilizer analyzed under the provisions of this article, shall be *prima facie* proof that the fertilizer was of the value and consistency shown by the said analysis.

"**Sec. 6375. Tax Tags.**—The board of trustees of the Clemson Agricultural College, or their agents, shall issue inspection tags or stamps for such person, company or corporation engaged in the manufacture or sale of commercial fertilizers in this State as shall present receipts or other evidences from the State Treasurer that sufficient funds have been paid into the State Treasury to cover such issue. And said person, company or corporation shall cancel all stamps or tags used, as evidence that said inspection tax has been paid, by stamping such tags or stamps with the name of the person, company or corporation selling, offering for sale or shipping, also the date of shipment or delivery of such fertilizers. No railroad or common carrier shall receive for shipment or delivery from any person, company or corporation any commercial fertilizers or fertilizing materials with tags or stamps bearing date of cancellation thirty or more days prior to delivery for shipment.

"**Sec. 6376. Inspection of Fertilizer Factories, Etc.**—In order to carry out the provisions of this article, any officer or agent of the said board of trustees, or of a committee thereof authorized by them for the purpose, may, at any hour during the daytime or nighttime, enter any factory, plant, car or other place, in which any fertilizer or substances designed or intended for use as a fertilizer is stored, to be shipped or sold, and may inspect the contents and operation thereof; and it is hereby made a condition to the shipment or delivery for shipment of any fertilizer from any such factory, plant, or car, that such inspection be permitted by the owner or operator thereof.

"**Sec. 6377. Annual Table of Values to Be Published by Board of Trustees of Clemson College—Liability for Deficiency—Penalties—Collection and Division among Consumers.**—On or before the first day of January, any year, the said board of trustees of the Clemson Agricultural College shall publish the relative values per pound and per unit of the various ingredients of a complete fertilizer, viz: Available phosphoric acid, ammonia equivalent of nitrogen and potash soluble in water, and furnish the same to any

person or corporation engaged in the manufacture of or sale of commercial fertilizers in this State upon application therefor; and that said valuation shall be the guide by which the party selling fertilizers shall estimate the value thereof for the next succeeding twelve months. That any vendor or manufacturer of commercial fertilizers, manures or cotton seed meal, whose goods or wares shall fall short in commercial value guaranteed by the analysis appearing on sack, tag or vessel, holding the same when delivered to the consumer, shall be liable to the consumer for the same *per centum* in selling price as the goods have fallen short in *per centum* of the commercial value found upon analysis made of the goods: *Provided*, That if the fertilizer or fertilizing materials fall short ten per cent., of the commercial value guaranteed by the analysis appearing on the sack, tag or vessel holding the same when delivered to the consumer, that then the seller or manufacturer shall be liable to the consumer for one-third of the selling value thereof, which amount is to be deducted from the amount of the consumer's indebtedness; and if the consumer has paid for the said goods, then the consumer can collect the same from the seller or manufacturer by due process of law: *Provided, further*, That if any of the ingredients constituting any brand of fertilizer, or fertilizing materials, or cotton seed meal sold in this State, fall short of the guaranteed analysis appearing on the sack, tag or vessel holding the same, as follows: In available phosphoric acid, thirty points (which shall mean three-tenths of one unit) on goods guaranteed up to ten per cent.; forty points (which shall mean four-tenths of one unit) on goods guaranteed over ten per cent. of available phosphoric acid; in ammonia or potash as follows: Fifteen points (which shall mean fifteen one-hundredths of one unit) on goods guaranteed up to one and one-half per cent., inclusive; ten per cent. of the ingredients on goods guaranteed above one and one-half per cent. up to and including three per cent. goods; thirty-five points (which shall mean thirty-five one-hundredths of one unit) on goods guaranteed four per cent.; forty points (which shall mean four-tenths of one unit) on goods guaranteed above four per cent., up to and including eight per cent.; fifty points on goods guaranteed over eight per cent., that then the manufacturer or seller shall be liable to the consumer for four times the commercial value of the entire

deficiency in available phosphoric acid or potash as found by analysis and three times the commercial value of the entire deficiency in ammonia, as found upon analysis of the goods, to be deducted from the consumer's indebtedness; and if the consumer has paid for the said goods, then the consumer can collect the same from the seller or manufacturer by due process of law. The penalty herein provided for shall apply to each ingredient, respectively, that may fall short as herein provided: *And provided, further,* That the seller of any fertilizer or fertilizing material falling short of the per cent. of ingredients at which the same may be billed or charged, shall be subject to a penalty of at least three times the value of such difference thereof, to be recovered in any court of jurisdiction by the consumer; but this proviso shall not apply to mixed fertilizers, or to cotton seed meal, to be recovered in any court of competent jurisdiction of this State by the purchaser of same, and if the purchaser be a dealer in such materials and have sold same to consumers of same, he shall disburse *pro rata* to such consumers to whom he sold the same penalties he recovers: *Provided, further,* That all penalties herein imposed for deficiencies in guaranteed analysis of any fertilizer, fertilizing material or cotton seed meal shall be entirely for the benefit of the ultimate consumer of such fertilizer, fertilizing material or cotton seed meal, and no such penalty, or part thereof, except as hereinafter authorized, shall accrue to any dealer in fertilizer, fertilizing material or cotton seed meal: *Provided,* That upon the assessment of a fine or penalty by the board of trustees of Clemson College, or a committee thereof, or by judgment in an action at law as herein provided, the net total of such fine or judgment shall be paid over to the dealer who sold or offered for sale such deficient fertilizer, fertilizing material or cotton seed meal, which said dealer shall, within thirty days thereafter, distribute *pro rata* ninety per cent. of such penalty, fine or judgment to the consumer to whom such goods as shall have been found deficient were sold, said dealer retaining ten per cent. of such penalty, fine or judgment for his services. And any dealer who received such fine, penalty or judgment, and who shall refuse so to distribute the records thereof upon demand within thirty days after the receipt thereof, or any dealer who shall refuse or neglect to accept and distribute said penalties or judgment,

shall be guilty of a misdemeanor, and, upon conviction, shall be fined not more than one hundred ($100.00) dollars, or imprisoned not exceeding ten days, or both, in the discretion of any court of competent jurisdiction: *Provided*, That nothing herein contained shall relieve any manufacturer, manipulator or mixer who shall have sold his goods direct to the consumer, from paying over to such consumer the full amount of any fine, penalty or judgment which may have been imposed or found on account of any deficiency in guaranteed analysis.

"Sec. 6378. Weight of Packages—Penalties for Short Weight.—All fertilizers or fertilizing materials sold or offered for sale for use within this State shall be in a package of one hundred or two hundred pounds each, except as hereinafter provided in section 6381: *And provided, further*, That this section shall not apply to foreign imported goods in original packages. The weight of the package of fertilizers shall be ascertained at the time of the delivery to the purchaser in the presence of at least two disinterested witnesses, one chosen by purchaser and one by seller, and the purchaser shall, within five days thereafter, notify the seller to make good such deficiency, and upon failure of the seller to do so within twenty days thereafter, he shall pay a penalty equal to the value of the goods, which penalty shall become recoverable by the State, one-half of the penalty so recovered to be paid to the purchaser, in the case of a sale, and the other half to be paid into the State Treasury, subject to the order of the board of trustees of Clemson College: *Provided*, If any such seller shall refuse, decline or neglect to choose a witness as herein prescribed, after having been notified or requested to do so, then he, or they, shall have forfeited their right to do so, and the purchaser shall select two witnesses, who shall in turn select a third, and they shall proceed to ascertain said weight.

"Sec. 6379. Sale, Transportation or Receipt of Fertilizers Not Properly Branded and Tagged Cause of Forfeiture—Recovery.—Every person, company, common carrier, or corporation who shall sell, offer for sale or transport in this State, or receive after sale, any commercial fertilizer or fertilizing material, without being properly branded, or having attached thereto such labels and tags as required by law, or who shall use, or permit to be used, the required label or tag for a second time, and any person who shall

receive any such fertilizer, shall forfeit to the State a sum equal to the selling price of each separate package sold, offered for sale, or received, to be recovered by suit brought in the name of the State in any court of competent jurisdiction; such foreitures, when collected, shall be paid to the State Treasurer, who shall hold the same subject to the order of the board of trustees of the Clemson Agricultural College of South Carolina: *Provided, further,* That the penalty defined in this section shall apply also to any misbranded fertilizer; a fertilizer being deemed to be misbranded if it carries any false or misleading statement upon, or attached to, the package.

"**Sec. 6380. Action by the State.**—The State may maintain an action in any court of competent jurisdiction against the vendor or owner of any fertilizer, fertilizing material or cotton seed meal sold in this State, or offered or exposed for sale in this State, or shipped or transported within or into the State in violation of law, to recover the fines and penalties due for the illegal sale, shipment or transportation thereof, regardless of the domicile or place of residence of such owner or vendor, and shall have a lien upon said fertilizer, fertilizing material and cotton seed meal, as well as upon any and all other fertilizers, fertilizing material and cotton seed meal to be found within the State belonging to the offending party or parties, to secure the payment of said fines or penalties and costs and expenses of such action, which lien shall be enforced by attachment of such fertilizers, fertilizing materials and cotton seed meal, under a writ of attachment to be issued in accordance with the practice prescribed in chapter 25, except that no security, as required of other plaintiffs by said chapter, need be given by the State in such action. That any seller of commercial fertilizers manufactured beyond this State shall be taken and deemed to be an agent of the manufacturer of said fertilizer for the purpose of the service of process, and of such papers as may be necessary in the commencement of any action or suit in any court of competent jurisdiction authorized under this article: *And provided, further,* That if there be judgment in favor of this State as plaintiff in such action, and the fertilizers, fertilizing material and cotton seed meal may be ordered sold under execution to satisfy such judgment, an inspector shall, under direction of the board of trustees of Clemson Agricul-

tural College, or a committee thereof, prior to said sale, draw proper samples from such fertilizer, fertilizing material and cotton seed meal and cause the same to be analyzed by the chemist of said college, or under his direction, and shall affix to the package thereof the inspection tags and brand, a statement of the result of such analysis on each package, as required by this article, so that the purchaser at the sheriff's or constable's sale may purchase said fertilizer, fertilizing material and cotton seed meal under a full guaranteed analysis, as provided by law: *Provided, however,* That the board of trustees of Clemson College, or a committee thereof, may remit, in whole or in part, upon payment of the expenses incident to an investigation, any penalty herein provided for, except the penalties provided for deficiency in analysis, where the offending person or corporation is able to show that its violation of this article was beyond its reasonable ability to prevent; such remission of penalty by the board of trustees of Clemson College, or a committee thereof, to be on such condition as to it may seem equitable and fair.

"**Sec. 6381. Sales of Fertilizer Material in Bulk.**—Manufacturers, jobbers, dealers or manipulators of commercial fertilizers may sell acid phosphate or other fertilizing material in bulk to persons, individuals or firms who desire to purchase the same for their own use on their own lands in this State, but not for sale, under such rules and regulations prescribed by the board of trustees of the Clemson Agricultural College, or a committee thereof, as are not inconsistent with the provisions of this article: *Provided,* That inspection tax shall be paid on such fertilizer as provided in section 6370. But if such bulk fertilizer is offered for sale it must be tagged and branded and otherwise accord with provisions of this article.

"**Sec. 6382. Sale of Fertilizer Not Meeting Requirements as to Nitrogen Unlawful.**—It shall be unlawful for any person, firm or corporation to sell, or offer for sale, in this State any fertilizer or fertilizing material furnishing nitrogen, in which the availability of the nitrogen does not meet the requirements of the board of trustees of the Clemson Agricultural College.

"**Sec. 6383. Samples for Analysis.**—Any citizen of this State who shall purchase, for his own use and not for sale, any fertilizers or manures or cotton seed meal, shall have

the right to have the same analyzed by the Clemson Agricultural College by taking a sample of same for analysis from not less than five bags and from at least ten per cent. of said fertilizers within fifteen days from the date of delivery, by giving the manufacturer thereof whose name and address appears on the bag or bags, or tags, at least six days' notice, in writing or by registered letter, of his intention to draw such sample and in case of neglect of said manufacturer to have a representative present within the time required, then in the presence of at least two disinterested witnesses, one to be chosen by such purchaser and one by the seller, who shall certify that said sample or samples were taken from such fertilizers or manures or cotton seed meal, which certificate, with the sample or samples, shall be sealed by a third disinterested party in the presence of said witnesses and directed to the Clemson Agricultural College. If any seller or vendor or manufacturer of fertilizers or commercial manures or cotton seed meal shall refuse, decline or neglect to choose a witness, as provided in this section, after having been notified or requested six days before such purchaser to do so, then he, or they, shall have forfeited their right so to do, and such purchaser shall select two disinterested witnesses, who shall select a third witness who shall proceed to take samples as hereinbefore provided. All samples of fertilizers or cotton seed meal drawn under the provisions of this section shall be subject to such other rules as may be prescribed by the board of trustees of Clemson College, or a committee thereof, not inconsistent with the provisions of this article.

"**Sec. 6384. Time in Which Samples to Be Analyzed.**—Said college shall have the said sample or samples analyzed free of cost and within forty (40) days, or as soon thereafter as practicable after receiving the sample or samples, supply the purchasers and sellers of such fertilizers or manures or cotton seed meal with a sworn certificate, giving the per cent. of the different fertilizer ingredients, signed by the chemist of said college.

"**Sec. 6385. Regulations by Trustees of Clemson College.**—The board of trustees of the Clemson Agricultural College of South Carolina shall have authority to establish such rules and regulations in regard to the inspection, analysis and sale of fertilizers and fertilizing materials as shall not be inconsistent with the provisions of this article, and

as in their judgment will best carry out the requirements thereof."

A Concurrent Resolution Providing for Appointment of a Committee to Review the Fertilizer Law of South Carolina and Make Recommendations on Same.

"Be it Resolved by the House of Representatives, the Senate concurring: That the Governor be and he is hereby requested to appoint a Committee consisting of such experts from the staff of Clemson College as may be deemed necessary, together with five representative farmers of the State who are to be designated by the Governor and five representatives of the Fertilizer Industry to be designated by The National Fertilizer Association for the purpose of reviewing the present fertilizer law of the State of South Carolina, and to propose such amendments thereto as may seem desirable, to draft a new fertilizer law if deemed advisable; said recommendations of the above Committee to be submitted to the Legislature of South Carolina at their annual session for the year 1935 for such action as the legislature may deem advisable."